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A.M.A. SESSION • ATLANTIC CITY, N. J. • JUNE 7-11, 1937

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CARCINOMA OF THE CERVICAL STUMP

LEWIS C. SCHEFFEY, M.D.

PHILADELPHIA

A study of the incidence of carcinoma in the cervix after supravaginal hysterectomy, widely known as "carcinoma of the cervical stump," naturally includes the consideration of certain associated problems.

One of these is to ascertain how often carcinoma is found or develops in the cervical stump. The combined published reports of others may be noted as well as the cases occurring under one's own observation.

A second problem is whether the carcinoma of the cervix was overlooked at the time of the hysterectomy or whether it developed sometime afterward, and what treatment has to offer.

A third problem, and the one of greatest importance, is How may this unfortunate complication be avoided?

INCIDENCE OF CARCINOMA OF THE CERVICAL STUMP

It is difficult to estimate the incidence of carcinoma of the cervical stump correctly. Unreported cases, diagnostic errors and different conceptions of what constitutes the condition influence statistics. Von Graff [1] in 1934 reported an average incidence of 4.1 per cent, based on a collection from the literature of 176 cases among 4,269 patients with carcinoma of the cervix, in whom the incidence observed by different individuals ranged from 2.5 to 11.3 per cent. Richardson [2] believes that the incidence does not exceed 3 per cent, all factors considered. Kretzschmar and Gardiner [3] found eighteen cases among 1,022 patients with cervical carcinoma during a thirty year period, 1.76 per cent.

From Sept. 1, 1921, to Sept. 1, 1935, there were 5,433 admissions (bed capacity of twenty-seven) in the gynecologic ward service of Dr. Brooke M. Anspach at the Jefferson Medical College Hospital. Of these patients 273 had carcinoma of the cervix, an incidence of 5.02 per cent of all gynecologic admissions (table 1).

During the same period ten patients with carcinoma of the cervical stump were observed, an incidence of 3.66 per cent of all patients admitted with cervical carcinoma (table 2). This represents 0.183 per cent of all gynecologic admissions.

The frequency with which carcinoma develops in the cervical stump can be determined with only relative accuracy. A follow-up study of consecutive cases of supravaginal hysterectomy in a hospital service is essential. Obviously such a review is beset with difficulties because many patients escape consistent postoperative observation and cannot be "followed up" indefinitely.

Von Graff [1] reported an incidence of 0.62 per cent in 7,244 cases collected from the literature. Richardson [2] is authority for the statement that the incidence is a little less than 1 per cent, basing this figure on "approximately 10,000 subtotal hysterectomies reported by a dozen different authors." More recently Fahndrich [4] reported an incidence of a little less than 0.04 per cent. This figure was arrived at from a compilation of reports from the German literature of 7,029 supravaginal hysterectomies in which twenty-eight stump carcinomas developed (0.039 per cent), together with 11,110 similar operations collected from literature foreign to Germany in which thirty-nine stump carcinomas occurred (0.038 per cent). Pearse [5] presents statistics from various sources totaling 13,507 cases with a record of fifty-three stump carcinomas, 0.039 per cent.

To ascertain the incidence of carcinoma of the cervical stump occurring after supravaginal hysterectomy in our gynecologic ward service, a study of its frequency has been undertaken, based on a follow-up study of the surgical cases.

From Sept. 1, 1921, to Sept. 1, 1935, 697 supravaginal hysterectomies were performed. Approximately one third of these patients had uncomplicated fibromyomas; one third exhibited complicating pelvic lesions in addition, generally of an inflammatory nature, while one third suffered from chronic pelvic inflammatory disease or allied adnexal conditions. Excluded from the study are fourteen postoperative deaths occurring within two weeks of operation (an immediate mortality for the series of 2 per cent); one death that occurred in the ward three months after operation (increasing the mortality to 2.29 per cent); one patient with advanced chorionepithelioma, already presenting metastases when operated on, who was discharged from the hospital in due time but returned and died of further metastases three months later. The study therefore includes 681 patients who survived the immediate operative procedure (table 3).

Of the 681 patients, 554 (81.3 per cent) have been observed at some time since the operation, and 127 (18.6 per cent) are regarded as "lost." Of these 554

From the Department of Gynecology, Jefferson Medical College Hospital.

Read before the Section on Obstetrics, Gynecology and Abdominal Surgery at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

Owing to lack of space, this article has been abbreviated for publication in THE JOURNAL. The complete article appears in the author's reprints.

1. Von Graff, J. E.: Cancer of the Cervical Stump Following Subtotal Hysterectomy, Am. J. Obst. & Gynec. **28**: 18 (July) 1934.

2. Richardson, E. H.: Total versus Subtotal Hysterectomy in Benign Uterine Disease, Am. J. Obst. & Gynec. **30**: 237 (Aug.) 1935.

3. Kretzschmar, N. R., and Gardiner, S.: A Consideration of the Surgical Menopause After Hysterectomy and the Occurrence of Cancer in the Stump Following Subtotal Hysterectomy, Am. J. Obst. & Gynec. **29**: 168 (Feb.) 1935.

4. Fahndrich, J.: Risk of Carcinoma of Cervical Stump Following Supravaginal Amputation, Ztschr. f. Geburtsh. u. Gynäk. **109**: 382, 1934.

5. Pearse, R. L.: Supravaginal Hysterectomy, Surg., Gynec. & Obst. **58**: 845 (May) 1934.

patients, carcinoma of the cervical stump is known to have developed in five, an incidence of 0.902 per cent (table 4).

The majority have been examined by members of the operating staff in a specially designated "postoperative follow-up clinic." During earlier years postoperative patients were seen by the regular "outpatient" personnel. The condition of others has been reported to us by the family physician. Contact with some has been by letter. The period of observation has ranged

TABLE 1.—*Incidence of Carcinoma of the Cervix*

Gynecologic ward patients, 1921-1935	5,433
Patients with carcinoma of the cervix	273
Incidence	5.02%

TABLE 2.—*Incidence of Carcinoma of the Cervical Stump*

Patients with carcinoma of the cervix	273
Patients with carcinoma of the cervical stump	10
Incidence	3.66%

from only three months in some instances to twelve and thirteen years in others. The inadequacy of the follow up in many instances is frankly acknowledged.

EXPERIENCE WITH CARCINOMA OF THE CERVICAL STUMP

The question now arises What proportion of cervical stump carcinomas were overlooked at the time of operation and what proportion were not apparent until a considerable time afterward? A review should include all the patients observed rather than a selected group of cases, e. g., one based on an arbitrary time limit between the supravaginal hysterectomy and the recognition of the disease. Some consider the lapse of one year as being indicative of the development of an independent neoplasm; others select two or three years as the limit. Such an arbitrary division may prove fallacious for several reasons. Frequently no description of the cervix at the time of the supravaginal hysterectomy is available. Only by biopsy or amputation can the actual presence of carcinoma be proved, and it is only by meticulous inspection that attention will be called to suspicious areas requiring biopsy. This is especially true of a seemingly intact cervix. Furthermore, how can it be proved that carcinoma might not develop within the time limit prescribed by some, not actually having been present at the time of operation, and its further development been so insidious that it was not recognized for several years thereafter? Definite proof of an overlooked carcinoma in the cervical canal (or cervix) is always afforded if the removed uterus or a portion of it shows evidence of a similar type of growth, especially near the site of the supracervical amputation.

Of the five patients in whom carcinoma of the cervical stump is known to have developed, four were treated in the service and are included among the group of ten patients observed. The fifth patient was observed and treated elsewhere. Considering the group in its entirety, certain distinctive features may be mentioned: All were married; two were nulliparous (20 per cent); four were Negroes. Of the six white patients, one was Jewish. The average age was 46; the oldest was 67 and the youngest 32; four were under 40.

Five patients had the hysterectomy because of fibromyomas, complicated in two instances by pelvic inflammatory disease; two had ovarian cystadenomas, one papillary in type; two had pelvic inflammatory disease. One operation was for the interruption of pregnancy in a tuberculous patient.

In two patients the histologic diagnosis was adenocarcinoma; in eight, squamous cell carcinoma of varying degrees of malignancy.

In three patients carcinoma was probably present and overlooked at operation; in two patients this was possibly true; in five the condition was observed from six to twenty-one years afterward (table 5). The study of the individual patients, characteristically grouped, with brief abstracts of each history and a critical analysis of each case, follows:

Group 1: In three cases it is very probable that carcinoma was present and overlooked at the time of the original operation:

CASE 1.—A Negress, aged 54, a primipara, was admitted March 14, 1922, because of postmenopausal bleeding. A diagnosis of fibromyoma uteri was made, the cervix appearing to be intact. Grossly, preliminary curettage did not suggest a malignant condition, and supravaginal hysteromyomectomy with bilateral salpingo-oophorectomy and appendicectomy was immediately performed. The pathologic report was "chronic endometritis with a marked hyperplasia of the epithelium, probably becoming carcinomatous." The patient was readmitted eleven months later because of pain and a bloody vaginal discharge, which had begun seven months after operation. The cervix was enlarged, indurated and friable (class 3, Schmitz; class 4, stage C, American College of Surgeons). Biopsy revealed adenocarcinoma. Radium treatment (3,100 mg. hours) was followed by death in six months.

We were to blame in this instance. In the light of present knowledge the original slide of the removed uterus has been reviewed, with this result: "The marked epithelial change should be considered malignant; areas

TABLE 3.—*Material for Study, Supravaginal Hysterectomy*

Supravaginal hysterectomies, 1921-1935	697
Excluded from study	
Postoperative deaths	15
Patient with chorionepithelioma	1
Patients available for study	681
Operative mortality	2.29%

TABLE 4.—*Incidence of Carcinoma of the Cervical Stump Following Hysterectomy*

Patients having supravaginal hysterectomy	681
Patients followed up	554
Known carcinoma of the cervical stump	5
Incidence	0.902%

showing a transitional type of cell suggest a cervical lesion, but this is not definite." It is impossible to state definitely whether this lesion was primarily in the endometrium or in the cervical canal. Dependence on the gross appearance of the curettings was inadequate. More careful preliminary study would have resulted in a different plan of treatment. In addition, the follow up was faulty.

CASE 2.—A white woman, aged 43, married, a septipara, was admitted June 11, 1928, with vaginal bleeding and discharge following a supravaginal hysterectomy performed elsewhere two months before without preliminary vaginal technic. Examination of the removed uterus was reported as "carcinoma of the uterus extending from the cervix." Examination showed

a fixed, indurated and friable cervical stump that bled freely (class 3, Schmitz; class 4, stage C, American College of Surgeons). Biopsy revealed squamous cell carcinoma (intermediate grade). Radium treatment (4,400 mg. hours) was followed by roentgen therapy (800 roentgens) two months later. The patient is living and well eight years after the treatment.

In this case proper preliminary study would have disclosed cancer of the cervix, and the initial plan of treatment would surely not have been supravaginal hysterectomy.

CASE 3.—A Negress, aged 31, married, a nullipara, was admitted March 23, 1931, because of pelvic pain and menorrhagia. A diagnosis was made of fibromyoma uteri accompanied by chronic adnexal inflammation. Chronic endocervicitis was observed. Following preliminary dilation and curettage, supravaginal hysteromyomectomy and right salpingo-oophorectomy was performed. Examination of the removed organs showed no malignant growth. Eight months later the patient was readmitted because of severe abdominal pain and leukorrheal discharge. The cervix at this time showed a localized hyperemic and hypertrophied area on the anterior lip, but the lesion was not treated and a biopsy was not taken. Intestinal obstruction was diagnosed, confirmed and relieved by operation. A recommendation that the cervix be cauterized was carried out later in the follow-up clinic. This resulted in an unusually persistent slough, accompanied by prolonged bloody discharge. A biopsy now revealed squamous cell carcinoma (low grade). Clinically the lesion was comparatively early (class 1, Schmitz; class 4, stage A, American College of Surgeons). Radium treatment (2,100 mg. hours) was followed by a severe local reaction with pelvic cellulitis; six months later roentgen therapy (1,512 roentgens) was administered. The patient is living and well four years after treatment.

It is not clear why the chronic endocervicitis noted at the time of the first operation was not treated or a biopsy was not taken. Failure to do so at the time of the second admission may be excused because an acute abdominal condition was present. At the time of the cauterization in the follow-up clinic, however, biopsy should have been performed; the delay in applying proper treatment need not have occurred.

Group 2: In two cases, while questionable, it is quite possible that carcinoma was overlooked at the time of the original operation:

CASE 1.—A white woman, aged 33, married, a secundipara, was admitted Sept. 19, 1925, because of progressive abdominal enlargement and dyspnea. A diagnosis of bilateral ovarian tumors with ascites was confirmed at operation, when supravaginal hysterectomy and bilateral salpingo-oophorectomy were performed. The cervix was not inspected, and preliminary dilation and curettage was not carried out. While no areas of malignancy were demonstrated either in the removed papillary ovarian cysts or in the uterus, high voltage roentgen therapy (800 roentgens) was administered postoperatively. Six months later "spotting" occurred and continued intermittently for three years, when her occasional visits to the outpatient department ceased. During this time little attention had been paid to this occasional bloody discharge; in fact, one dispensary assistant told her that it was of no consequence. A year later, three and one-half years after the primary operation, she was readmitted because of a vaginal hemorrhage. Examination showed the cervix to be replaced by an everting, ulcerating mass, with marked peripheral induration (class 3, Schmitz; class 4, stage C, American College of Surgeons). Biopsy revealed squamous cell carcinoma (high grade). Radium was applied on two occasions (3,600 mg. hours and 2,400 mg. hours respectively) with subsequent roentgen therapy (2,052 roentgens). Death occurred one year and four months after the initial irradiation.

While the tendency to tumor formation, as evidenced by the development of papillary ovarian cysts in this patient, may have been reflected in a cervix exhibiting low resistance to carcinoma, the latter was in all probability developing while the patient was a postoperative visitor to the outpatient department. Because of negligence, valuable time was lost in discovering and treating this woman before the disease had reached an advanced stage.

CASE 2.—A Negress, aged 32, married, a nullipara, was admitted Nov. 15, 1926, because of menorrhagia. A diagnosis of fibromyoma uteri of huge proportions, with adherent adnexa, was made. A nulliparous cervix was noted as being "somewhat increased in size and softened." Preliminary dilation and curettage was performed, but the cervix was not treated in any way and a biopsy was not taken. Supravaginal hysteromyomectomy and bilateral salpingo-oophorectomy were performed with some difficulty because of the size of the tumor and the accompanying adhesions. Examination of all removed tissues showed no evidence of a malignant condition. The patient was readmitted three years later, saying that vaginal bleeding had begun nine months after the operation but that she did nothing about it for two years, when she went to another institution, where a diagnosis of carcinoma of the cervix was made and roentgen therapy was administered (1,800 roentgens). Examination showed the cervical stump to be enlarged, indurated, friable and partially fixed (class 5, Schmitz; class 4 and 5, American College of Surgeons). Biopsy showed a squamous cell carcinoma (high grade). Treatment with radium (3,600 mg. hours) was followed by a rectovaginal fistula within a year, death occurring within a few months of her admission to the institution in which she had previously been treated, where further roentgen treatments (5,700 roentgens) were administered.

TABLE 5.—*Carcinoma of the Cervical Stump*

Patients seen	10
Nulliparas	2
Jewish	1
Hysterectomy for fibromyomas	5
Adenocarcinoma	2
Probably present at operation	3
Possibly present at operation	2
Apparent 6 to 21 years after operation	5

Although the cervix in this instance was nulliparous, the notation that it was "somewhat increased in size and softened" should have called for more minute investigation. The size and character of the tumor together with its fixation undoubtedly dominated the situation to such an extent that an inconspicuous cervical lesion may have been overlooked. The patient's statement regarding the appearance of vaginal bleeding nine months later is the only evidence available for evaluation, since two years elapsed before she sought medical advice.

Group 3: In five cases the condition was not apparent for a considerable time after the original operation:

CASE 1.—A Jewish woman, aged 38, married, a quintipara, was admitted Aug. 12, 1928, because of vaginal bleeding of one year's duration. Supravaginal hysterectomy with a three months fetus in utero had been performed elsewhere six years before, because of active pulmonary tuberculosis. The adnexa had been conserved; no notes were available regarding the condition of the cervix. Examination showed a proliferative, friable cervical growth, bleeding readily (class 3, Schmitz; class 4, stage B, American College of Surgeons). Biopsy revealed squamous cell carcinoma (intermediate grade). Radium treatment (3,375 mg. hours) was administered. The patient is living and well eight years after treatment.

CASE 2.—A white woman, aged 44, married, a primipara, was admitted May 11, 1934, because of vaginal bleeding and a foul discharge. Supravaginal hysterectomy and bilateral salpingo-oophorectomy because of an ovarian cystadenoma (nonmalignant) had been performed elsewhere, apparently not preceded by dilation and curettage or cervical treatment. With the onset of bleeding seven years later the patient returned to the same operator, who took a biopsy of the lesion, which revealed

adenocarcinoma, presumably of the cervical canal. Radium was applied (2,400 mg. hours). Examination on admission evidenced a contracted vagina; the cervix was replaced by an ulcerative crater with marked, peripheral induration (class 5, Schmitz; class 4 and 5, American College of Surgeons). Biopsy yielded necrotic degenerated tissue, but a review of the former histologic slide substantiated the diagnosis of adenocarcinoma. Roentgen therapy (1,581 roentgens) was administered, a rectovaginal fistula developing within three months. Death occurred in another institution a month after that.

CASE 3.—A Negress, aged 48, married, a tertipara, was admitted May 3, 1925, because of pelvic pain and vaginal bleeding. Supravaginal hysteromyomectomy for myoma uteri had been performed elsewhere nine years before; no notes regarding the condition of the cervix were available. Examination showed an indurated, immobile cervix, not particularly friable (class 3, Schmitz; class 4, stage B, American College of Surgeons). Biopsy revealed a squamous cell carcinoma (not graded; the slide was not available for review). Radium treatment (2,400 mg. hours) was followed by roentgen therapy (800 roentgens). The patient was not seen again until six years later, when she presented herself because of vaginal bleeding. An ulcerative, bleeding growth was present at the site of the cervix in the vaginal vault, encroaching on the adjacent tissues and accompanied with widespread induration of the broad ligaments. Roentgen therapy was administered (1,628 roentgens). Death occurred five months later.

CASE 4.—A white woman, aged 52, married, a tertipara, was admitted July 4, 1928, because of pelvic pain and bleeding. Supravaginal hysterectomy, bilateral salpingectomy and oophorectomy had been performed elsewhere ten years before. (Dilation and curettage and appendicectomy with oophorectomy had been performed at separate times prior to the hysterectomy, but no notes about the condition of the cervix were available). Examination showed a partially obliterated friable cervix, bleeding readily and accompanied with marked peripheral induration and tenderness (class 3, Schmitz; class 4, stage C, American College of Surgeons). Biopsy revealed a squamous cell carcinoma (intermediate grade). Radium treatment (3,000 mg. hours) was applied. The patient is living and well eight years after treatment.

CASE 5.—A white woman, aged 67, widowed, a primipara, was admitted Jan. 31, 1934, because of a bloody vaginal discharge. Supravaginal hysteromyomectomy for myoma uteri, together with bilateral salpingo-oophorectomy, had been performed elsewhere twenty-one years before. Preliminary dilation and curettage had been performed, but no notes of the condition of the cervix were obtainable. Two years prior to admission she had received a cautery treatment in another institution for the present symptoms. Examination showed the cervix to be replaced by a proliferative mass, accompanied by peripheral induration extending into the paracervical tissues (class 3, Schmitz; class 4, stage C, American College of Surgeons). Biopsy revealed squamous cell carcinoma (intermediate grade). Radium treatment (2,400 mg. hours) was administered. The patient is living and well two years after treatment.

In this group the stump carcinomas were discovered six, seven, nine, ten and twenty-one years, respectively, after hysterectomy, and it is reasonable to assume that carcinoma was probably absent when operation was performed. All were multiparas and had received no cervical treatment prior to the hysterectomy. One patient was Jewish, representing an unexplained racial immunity to carcinoma of the cervix. The operative procedure in one had been for an ovarian cystadenoma, supposedly nonmalignant; the biopsied cervical stump revealed adenocarcinoma. Might the original lesion have been an undiscovered glandular type of malignant growth bearing some relation to the subsequent cervical canal lesion? One patient had survived for six years following the initial treatment. Might not an efficient follow up have provided further salvage? Finally, one patient received cautery treatment, without biopsy, two years prior to receiving proper treatment, and has remained well for two years in spite of the earlier delay.

An abstract of the history of the patient in whom stump cancer developed and who was treated elsewhere is enlightening.

CASE 1.—A white woman, aged 30, married, a quintipara, was admitted April 9, 1926, because of pelvic pain and menorrhagia. Diagnosis of relaxed outlet, lacerated cervix with eversion and myomatous uterus was made. Dilation and curettage, trachelorrhaphy, anterior and posterior colporrhaphy and supravaginal hysterectomy with right salpingo-oophorectomy and appendicectomy was performed. It was noted on discharge that the cervix was well healed and the cervical stump well suspended. Histologic study of the removed uterus and adnexa showed no evidence of a malignant condition (recent review of slide also), but the removed cervical tissue was either lost or overlooked, for no report regarding it could be found. Follow-up examination one year later was negative but two years after that it was learned that she had been treated elsewhere for adenocarcinoma of the cervical stump. A recurrence has been treated twice. Her present physician reports that she is well at this time, eight years after the primary treatment for carcinoma.

This case is illustrative of negligence, either in the transportation of the removed tissue to the laboratory or in indifference on the part of the laboratory personnel. It is possible that the removed cervical tissue might have revealed a malignant condition, although three years elapsed, as far as we know, before the condition of adenocarcinoma was discovered. The cervix was apparently in good condition a year after operation. In any event it seems inexcusable that the cervical tissue originally removed was never examined microscopically. A case recorded in the carcinoma clinic is similarly illustrative. Tissue from a repaired cervix had shown sufficient hyperplasia of the squamous epithelium to be regarded with suspicion. Instead of being followed up energetically she was lost sight of, only to return four years later with an advanced carcinoma of the cervix, to which she succumbed a relatively short time after receiving radiation therapy.

Contrasted with these patients is the case of an elderly patient on the roster of the carcinoma clinic whose cervix was amputated in conjunction with an application of radium to the uterine cavity for fibrosis uteri. The curettings showed no evidence of a malignant condition, but an early squamous cell carcinoma was found microscopically in the removed cervical tissue. Further radium was promptly applied to the reconstructed cervix, and the patient is alive and well ten years after treatment.

TREATMENT

Healy and Arneson [6] and others have called attention to the difficulties encountered in treating patients with cervical stump carcinoma, stressing the hazards of both surgery and radium and emphasizing the importance of sufficient external irradiation. With meticulous radiation technic, applied in masterly fashion, they have reported a five year salvage of 14 per cent, based however on those patients in whom the condition had developed at least three years after the supravaginal hysterectomy—a selected group. Von Graff [1] reported 9.3 per cent of five year cures in a collected series of 428 patients. The salvage figure of Meigs [7] (for four years only) is 7.6 per cent. Sackett [8] recently published

6. Healy, W. P., and Arneson, A. N.: A Study of Carcinoma of the Cervical Stump Developing After Subtotal Hysterectomy, Am. J. Obst. & Gynec. **29**: 370 (March) 1935.

7. Meigs, J. V.: Carcinoma of the Retained Cervix, or Subtotal vs. Total Hysterectomy, Am. J. Obst. & Gynec. **31**: 358 (Feb.) 1936.

8. Sackett, N. B.: The Prognosis of Cancer of the Cervix Treated by Irradiation, New York State J. Med. **35**: 1153 (Nov. 15) 1935.

statistics from George Gray Ward's clinic showing a five year survival rate of 48.4 per cent and a ten year rate of 25 per cent, irrespective of the time elapsing between the original operation and the radiation treatment.

The ten cases that I have described were treated with radiation: four with radium alone, five with radium and x-rays, one with x-rays alone. Three are alive and well eight years after treatment, representing a five year salvage of 42.8 per cent. (Two of these were treated with radium only, and in one roentgen therapy was added.) One patient is alive and well four years after radium and roentgen treatment, one is alive and well two years after radium treatment only. Considering the entire group, this represents a present-day salvage of 50 per cent (table 6). The absolute curability rate in carcinoma of the cervix, recently reported from the gynecologic department,[9] was 19.2 per cent.

The radium employed was in the form of a 50 mg. capsule of radium sulfate, sealed in glass within a silver capsule of 0.3 mm. thickness, enclosed in turn by a brass capsule of 1 mm. thickness and further screened with black rubber tubing 2 mm. in thickness. This was placed in the cervical canal or in the vaginal vault crater. For distribution about the periphery of the growth, or within it, needles, each containing 12.5 mg. of radium and screened with 0.3 mm. of monel metal, have been employed. Protection of normal tissues has been afforded by the liberal use of gauze packing, thus increasing as far as possible the distance between the implanted radium and the surrounding parts—bladder, rectum, intestine and uninvolved vaginal walls. In addition a self-retaining catheter has been placed in the bladder as a routine procedure.

Since 1927, treatment has been directed through four ports, two anterior and two posterior, the ports varying with the size of the patient. The object is to deliver 100 per cent of the skin erythema dose into the depths of the pelvis in two weeks, by treatment on alternate days, until the saturation level is reached. Treatment is then continued two more weeks, the depth dose being kept at 100 per cent by giving sufficient treatment to overcome any deficiency sustained in the intervals between treatments. The dosage delivered through each port by this method varies from 1,400 to 2,500 roentgens. The roentgen therapy has been administered in the department of roentgenology at Jefferson under the direction of Dr. Willis Manges and his associates, Dr. John T. Farrell Jr. and Dr. Manges Smith.

AVOIDANCE OF CARCINOMA OF THE CERVICAL STUMP

The final and most important problem concerns the measures that should be taken to avoid this unfortunate complication. What are the related factors that must be considered and how may they be controlled to best advantage?

The association of fibromyomas with carcinoma of the fundus, and to a lesser extent with carcinoma of the cervix, is an observation of long standing. More recently the thought has been expressed that excessive hormone influence in the presence of fibromyomas may predispose to a malignant condition of the cervix. Most assuredly an adenocarcinoma of the endometrium, alone or accompanying a myoma, may readily extend to the cervical canal. Meigs[7] has advanced the thought that the association of fibromyomas and sterility is indicative of uterine hypoplasia and that the cervix of such a uterus may thereby be rendered less resistant to the development of cancer. It has long been recognized too that the damaged and diseased cervix, giving rise to annoying symptoms, is a responsible factor in the etiology of carcinoma. With these thoughts in mind what should be one's attitude toward the final phase of the problam?

The best treatment of any disease is prophylaxis. If this is true then one must agree with those who insist that, whenever the removal of the nonmalignant uterus is indicated, total hysterectomy should be the procedure of choice; but prophylaxis in this instance has its limitations, and in practice such a plan cannot possibly be carried out as a routine measure. The immediate safety and recovery of the patient is the primary consideration, not the possible occurrence of a remote lesion. This statement is based on the presumption that the incidence of carcinoma of the cervical stump is comparatively less than the increased mortality and morbidity resulting from complete hysterectomy as compared with the supravaginal operation in the hands of the average operator. While it is true that the majority of stump carcinomas have occurred following subtotal hysterectomy for fibromyomas, it is likewise true that the majority of uteri have been removed because of them, either alone or accompanied with adnexal lesions.

TABLE 6.—*Treatment*

	Patients Treated	Alive at Present	Died
Radium only	4	3 (8, 8 and 2 yrs.)	1 (6 mos.)
Radium and x-ray.....	5	2 (8 and 4 yrs.)	3 (1 to 6 yrs.)
X-ray only	1	0	1 (4 mos.)
5-year curability (8 patients).....			42.8%
Living and well (5 patients).....			50%

The consensus contributed to by the testimony of numerous observers studying large series of cases seems to be that in average hands the mortality following complete abdominal hysterectomy is actually greater than that which follows the subtotal operation. The recently published statistics of Siddall and Mack[10] lend much support to this belief. A collected series of 4,559 total hysterectomies reveal a mortality of 3 per cent as opposed to the figure of 2.6 per cent for 7,795 subtotal procedures; to this they add their own results, 6.4 per cent for 235 complete and 2.6 per cent for 1,141 supravaginal operations.

Meigs,[7] in establishing an incidence of 0.73 per cent for what he terms "real" cervical stump carcinoma, states that this is less than half of the incidence of cervical carcinoma as observed at the Massachusetts General Hospital, arguing from this fact that carcinoma of the cervical stump is only half as likely to occur in women as is carcinoma of the cervix in general. From this he deduces that "for the advocates of total hysterectomy to maintain their position it would be necessary for them to show not over a 0.73 per cent difference in mortality between subtotal and total hysterectomy."

Richardson[2] points out that among expert and experienced operators the mortality in either operation does not exceed 1.5 per cent, but he wisely calls attention to the fact that, apart from the question of mortality, postoperative complications and morbidity play a significant part in discouraging the adoption of complete hysterectomy as a routine procedure. While in

9. Scheffey, L. C., and Thudium, W. J.: Further End Results in the Treatment of Carcinoma of the Cervix, Am. J. Obst. & Gynec. **31**: 946 (June) 1936.

10. Siddall, R. S., and Mack, H. C.: Subtotal versus Total Hysterectomy, Surg., Gynec. & Obst. **60**: 102 (Jan.) 1935.

exceptionally skilled hands the complete operation may be performed with comparative rapidity and safety—even perhaps in the presence of a complicated pathologic condition—it is unquestionably true that it is not the average operator alone who finds it more difficult and time consuming than the supravaginal procedure, even though excellent plans, such as those proposed by Richardson [11] and Farrar,[12] are followed.

During the period covered by this review only thirty-seven complete hysterectomies were performed in the ward service. Twenty-two were abdominal with two postoperative deaths, both occurring in patients with fundal carcinoma, a mortality of 9.9 per cent. Fifteen

TABLE 7.—*Complete Hysterectomy*

Type	Number	Postoperative Deaths	Mortality
Abdominal	22	2	9.09%
Vaginal	15	0	0.00
Total	37	2	5.4%

were vaginal with no deaths, making the total mortality for the complete operation 5.4 per cent (table 7).

Considering these expressions of opinion, it does not seem rational to advocate complete hysterectomy as a routine procedure, even though endocervicitis or cervical lacerations with eversion and hypertrophy are present.

What is the best procedure that can be followed from the prophylactic standpoint in lieu of routine panhysterectomy? The answer is thorough preliminary inspection of the cervix and cervical canal, possibly utilizing Schiller's test and the colposcope, with biopsy of suspicious areas, or endometrial curettage if indicated. This plan may be criticized as time consuming. Perhaps it is; but of what moment is a matter of a delay of twenty-four or forty-eight hours if the ultimate risk to the patient's life is thereby diminished? Should the presence of a malignant condition be disclosed, the plan of treatment may then be altered accordingly.

If the results are negative, thorough cauterization of the cervical mucosa, cervical canal, everted and eroded areas on the cervical lips at the site of old lacerations, or in some instances cervical surgery, can be carried out before proceeding with abdominal section. If a prolonged or hazardous abdominal procedure is anticipated, these cervical procedures may be deferred until later. If diagnostic curettage has not been performed beforehand (as is desirable in exceptionally suspicious cases), it should certainly be done at this time. If the curettings are grossly suggestive of a malignant growth a frozen section can be examined forthwith, or a capsule of radium may be placed in the uterine cavity while a twenty-four hour pathologic report is awaited. If carcinoma of the endometrium is not probable, the uterine cavity may be flushed with 70 per cent alcohol injected slowly with a syringe following diagnostic curettage and cervical treatment, thus sterilizing the uterine cavity prior to the hysterectomy and providing an aseptic field for the supracervical amputation.

The foregoing procedures ought not be reserved solely for the patient who is a poor surgical risk or for one in whom the pelvic pathologic condition is questionable or undoubtedly complicated; it is recommended likewise for the patient whose general physical condition is good and in whom the pelvic pathologic condition is apparently well defined. The plan outlined should also be carried out even when the cervix appears to be intact. Close scrutiny may reveal an area or areas that would be benefited by cauterization, and diagnostic curettage sometimes reveals unsuspected pathologic changes. When fundal carcinoma is definitely suspected, a sound plan is to perform diagnostic curettage and apply radium to the uterine cavity pending the establishment of the diagnosis by microscopic study or a rapidly prepared section (not necessarily a frozen one); subsequent high voltage roentgen therapy to the pelvis is then followed by panhysterectomy in from four to six weeks, unless there are definite contraindications to radical surgery, in which event continued radiation therapy may be imperative.

If, on the other hand, with a patient in reasonably good physical condition the cervix is hypertrophied, lacerated and everted, and the examination under anesthesia leads one to believe that operation presents no unsurmountable technical difficulties, complete hysterectomy might well be considered as the procedure of choice.

The desirability of adequate follow up after this plan of treatment should be emphasized. Sometimes the cauterized cervix needs further attention; even the cervix that has been treated surgically should be kept under observation at intervals. Numerous authors have called attention to the recurrence or occurrence of a malignant growth in the vaginal vault following total hysterectomy. This fact may be coupled with one that is sometimes forgotten; namely, that an operative fatality may defeat the objective of a radical procedure, designed as it is to eliminate the diseased cervix. This adds further weight to the argument of those opposed to complete hysterectomy as a routine procedure.

The plans outlined have been followed in the ward service for fifteen years. This experience has resulted in modification from time to time of technical details in the operating room. My associates and I have sought more effective cooperation with the pathologic laboratory and have developed a decidedly better follow-up

TABLE 8.—*Preliminary Procedures, Supravaginal Hysterectomy*

Years	Number	No Dilation and Curettage or Cervical Treatment	Dilation and Curettage Only	Dilation and Curettage Cautery	Dilation and Curettage Cervical Surgery
1921-1928	293	156	108	0	29
1928-1935	388	50	159	169	10
Total	681	206	267	169	39
Per cent		30.2	39.2	24.8	5.7

system. In some instances, either because of the inaccessibility of the cervix or for some unexplained reason, curettage was dispensed with. Absence of lesions naturally accounts for a reduction in the number of cervices treated.

A controversial subject is whether or not cervical cauterization, coring out of the cervical mucosa either from below or from above, repair or amputation will tend to prevent the development of carcinoma. It has been repeatedly pointed out that 80 per cent of cervical carcinomas develop on the portio vaginalis; hence destruction or removal of the cervical mucosa alone will not suffice. It should not be forgotten, however, that eversion and erosion of the cervical mucosa extending down to or involving the squamous surface is therefore at the point where carcinoma is believed to originate

11. Richardson, E. H.: A Simplified Technic for Abdominal Panhysterectomy, Surg., Gynec. & Obst. **48**: 248 (Feb.) 1929.
12. Farrar, L. K. P.: Total Abdominal Hysterectomy, Surg., Gynec. & Obst. **60**: 827 (April) 1935.

and that thorough treatment of this area, either by the cautery or by surgical removal, is not only a rational prophylactic measure but a curative one as well. Pemberton and Smith [15] presented substantial evidence of this assumption in 1929, when they reported the occurrence of but five known cases of carcinoma following treatment of 5,692 cervices. Tompkins [16] has recently reported a follow-up study of 611 patients having cervical treatment of all varieties, of whom but two are known to have developed carcinoma.

Preliminary dilation and curettage alone was performed in 267 of the 681 patients (39.2 per cent); 169 (24.8 per cent) had cervical cauterization as well, while thirty-nine (5.7 per cent) had cervical surgery in addition to the curettage. Two hundred and six (30.2 per cent) received no preliminary curettage or cervical treatment of any kind. It is of interest to note that in the first seven years of this review these procedures were omitted 156 times in 293 operations (51.1 per cent), while in the latter seven years they were omitted but fifty times in 388 operations (12.8 per cent). This is a striking illustration of the increased importance attached to these methods. Also of interest is the fact that from 1921 to 1928 the twenty-nine cervices that were treated were either repaired or amputated and none were cauterized, while from 1928 to 1935 but ten were treated surgically while 169 were cauterized (table 8).

TABLE 9.—*Incidence of Carcinoma of Cervical Stump; Treated and Untreated Cervices*

Patients followed up	554	
Cervices treated	170	
Known carcinoma of cervical stump	1	(0.508%)
Cervices untreated	384	
Known carcinoma of cervical stump	4	(1.04%)

Only one of 170 patients out of the 554 who received cervical treatment prior to hysterectomy is known to have developed stump carcinoma, representing an incidence of 0.508 per cent. Of 384 of the 554 patients receiving no cervical treatment, four are known to have developed stump carcinoma, an incidence of 1.04 per cent, or twice that which occurred among those who had received cervical treatment (table 9).

CONCLUSIONS

The incidence of carcinoma of the cervical stump does not justify complete hysterectomy as a routine procedure in every case.

Careful preliminary inspection, biopsy of the cervix, and diagnostic curettage will reduce to a minimum the chance of overlooking carcinoma.

A diseased cervix always requires treatment, but, when cauterization will suffice, its practice as a preliminary to supravaginal hysterectomy makes complete removal unnecessary. In a few instances, trachelectomy or trachelorrhaphy may be better than cauterization. From this review it would seem evident that those patients who did receive preliminary cervical treatment were less prone to develop carcinoma of the cervical stump.

In our experience, treatment has resulted in a curability of 42.8 per cent for five years and longer.

255 South Seventeenth Street.

15. Pemberton, F. A., and Smith, G. V.: The Early Diagnosis and Prevention of Carcinoma of the Cervix, Am. J. Obst. & Gynec. **17**: 165 (Feb.) 1929.
16. Tompkins, P.: The Results of Treatment of Benign Lesions of the Cervix Uteri, Am. J. Obst. & Gynec. **30**: 369 (Sept.) 1935.

ABSTRACT OF DISCUSSION

DR. J. P. PRATT, Detroit: Some difficulty is experienced in arriving at the correct figure for occurrence of carcinoma in the stump of the cervix, following supravaginal hysterectomy. The figures presented from time to time show a considerable number. Correction for the true recurrence is not always easy. If there were no cervical stumps left, there could be no such recurrences. The question at hand seems to be to balance the difficulty and hazard of a complete or total hysterectomy against the hazard of carcinoma occurring in the cervical stump. There seems to be a rather wide variation in opinion concerning the relative risk of a total and a partial hysterectomy. For a number of years my choice of operation was incomplete hysterectomy because it seemed safer. The late Dr. J. F. Baldwin practiced complete removal for years with admirable results. One demonstration by him was convincing that the total removal of the uterus need not exceed the risk of partial removal. He influenced me to accept total hysterectomy as the operation of choice. Having adopted his method, I am able to corroborate his statement that total incurs no greater risk than partial hysterectomy. For several years our operative mortality has been less than 0.5 per cent. There is an irreducible minimum mortality on account of emboli and other uncontrollable conditions not characteristic of a particular operation, but suitable preoperative and postoperative care, together with the proper technic for total hysterectomy, should enable an operator competent to do a partial hysterectomy to do a complete hysterectomy, with a margin of safety far below the frequency of carcinoma in the cervical stump.

DR. HENRY SCHMITZ, Chicago: I congratulate Dr. Scheffey on the excellent and conservative way in which he has presented this subject. The subject of stump carcinoma of the cervix is of interest because one always feels that, when a carcinoma occurs in the cervical stump, primary removal of the cervix would have prevented such a catastrophe. I have assumed the conservative attitude. If the cervix on preoperative examination seems to be normal it is not necessary to remove it during hysterectomy. Unfortunately, I cannot give the percentage of stump carcinomas following hysterectomies as Dr. Scheffey did, which stamps his report as being unusually valuable. A year ago I studied 730 consecutive cases of carcinoma of the cervix observed up to Dec. 31, 1931. There was an incidence of stump carcinoma of 3.84 per cent, or twenty-eight cases. Recently I studied a group of cases admitted from May 1, 1933, until June 30, 1934. In these ninety-seven cases I found nine cervix stump carcinomas, or 10 per cent. Of course, this doesn't mean anything so far as the incidence is concerned, but it is interesting to note that in the one large group we had 3.5 per cent stump cancer and in the smaller group of recent origin 10 per cent. The question arises whether these carcinomas could have been prevented by total hysterectomy. The removal of the cervix would have prevented them, but I feel that if the cervix is perfectly normal on examination there is no necessity for the removal. The cases cited were treated with radiation. They were studied carefully to determine the clinical extent of the tumors. The same observation made for primary carcinomas applies to stump cancers. The earlier the patient comes for treatment, the better are the good end results. The absolute five year curability percentage was twenty-five in our group.

DR. R. Q. ROWSE, Sioux City, Iowa: I had two subtotal hysterectomy patients return within a period of five years for carcinoma of the remaining cervix. That induced me to perfect a method of complete hysterectomy in all my cases. I have classified them in this manner: fibroid uterus and dangerous uterus. Fibroid uterus in multiparas with lacerations and endocervicitis: complete hysterectomy. Fibroid uterus in nulliparas aged 35 or under, with normal cervix: subtotal hysterectomy, leaving tubes and ovaries. Dangerous uterus constituted by the troublesome, bleeding, retroverted uterus, usually in multiparas. There is a definite difference between menstruation and bleeding. It is the bleeding uterus that is dangerous. There were forty-two complete hysterectomies for fibroids and forty complete hysterectomies for dangerous uterus. Specimens showed seven cancers in the forty-two fibroids and seven cancers in

the forty dangerous uteri. The whole group numbered eighty-two cases. The total number of cancers found was fourteen. All patients are living. There have been no recurrences.

DR. LEWIS C. SCHEFFEY, Philadelphia: I want to congratulate Dr. Pratt on his remarkable postoperative mortality of 0.5 per cent following total hysterectomy. I did not have time in the presentation of the paper to mention some statistics that also came from Detroit which lent support to the argument that routine complete hysterectomy is inadvisable. They were reported by Siddall and Mack, who, in addition to collecting a series showing 3 per cent mortality following total as against 2.6 per cent following supravaginal hysterectomy, reported their own results, 6.4 per cent mortality following 235 complete operations and 2 per cent following 1,141 supravaginal. Dr. Schmitz has mentioned that the incidence of carcinoma of the cervical stump following supravaginal hysterectomy varies a great deal. I did not have time to quote the recent work of Fahndrich, who collected more than 18,000 cases of supravaginal hysterectomy, with an incidence of stump carcinoma of less than 0.04 per cent. I think that when complete hysterectomy is indicated the operative plan devised by Richardson, and the one later described by Farrar, tend to make the operation a great deal easier.

IDENTIFICATION OF THE CANCER CELL

WILLIAM CARPENTER MacCARTY, M.D.
ROCHESTER, MINN.

Cancer must be recognized and treated early if the best results are to be obtained. This has been the theme of all professional and popular international, national, state and county campaigns for many years.

The question arises: Are we recognizing cancer early? In 1918 I began a series of observations to determine just what effect cancer campaigns were having on the actual sizes of cancers being removed surgically. As pointed out by Balfour, Harrington and Rankin, only 25 per cent of the cancers of the stomach, 50 per cent of cancers of the breast and 58 per cent of the cancers of the large intestine are operable when seen by surgeons. These figures have not changed appreciably over a period of fourteen years. There has been little or no change in the average size or percentage of those having glandular involvement in this same period.[1] There has been certainly some improvement but it has not reached a high point comparable to the therapeutic efficiency of surgeons and radiologists, who have shown remarkable results considering the advanced stages of cancer they have been forced to treat.

So far as the pathologist is concerned, his technical methods of study of tissues have changed little if any since the time of Virchow; he still uses autopsy or other material fixed and embedded in paraffin or celloidin. He also uses predominantly only the low powers of the microscope. Medical students today rarely if ever see unfixed tissues; they get their knowledge from the same type of microscopic sections that were looked at by students forty years ago.

In 1907 I began the study of fresh, unfixed, unembedded, surgically removed tissues with and without stains. It was not very long before I recognized that cancer cells were not irregular in shape and size or even pyknotic as described in textbooks; neither did they contain asymmetrical mitotic figures described by von Hansemann[2] in 1890. Living and unfixed and unembedded fresh cancer cells were found to be beautifully ovoidal or spheroidal and to contain one or more large nucleoli, which are rarely visible in fixed and embedded postmortem material. It was quite obvious that the nucleoli were much larger in such malignant cells than in reparative regenerative cells with which they might be confused with low powers of the microscope. Drawings and photographs of these were shown as early as 1914 and since then measurements have been made and reported.[3]

Today I wish to report a recent series made by different and independent workers in our laboratories of surgical pathology. The accompanying tables should be sufficient to substantiate the repeatedly made statements that the nucleoli of cancer cells are much larger than those in any other condition of cells of a given tissue.

If this is true, pathologists must study perfectly fresh tissues without embedding if they expect to recognize cancer before it reaches the late stage of

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From the Division of Surgical Pathology, the Mayo Clinic.

Read before the Section on Pathology and Physiology at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. MacCarty, W. C.: The Size of Operable Cancers (A Study of 7,179 Specimens), Am. J. Cancer **17**: 25-33 (Jan.) 1933.

2. Hansemann, David: Ueber asymmetrische Zelltheilung in Epithelkrebsen und deren biologische Bedeutung, Virchows Arch. f. path. Anat. **119**: 299-326 (Feb. 4) 1890.

3. MacCarty, W. C.: Precancerous Conditions, J. Iowa State M. Soc. **4**: 1-11 (July 15) 1914.
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The Histogenesis of Cancer of the Stomach, Am. J. M. Sc. **149**: 469-476 (April) 1915.
The Biologic Position of the Carcinoma Cell, Pan-Am. M. & S. J. **20**: 1-28, 1915.
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The Pathologic Reasons for the Legitimate Error in X-Ray Diagnosis of Gastric Carcinoma and Ulcer, Am. J. Roentgenol. & Radium Therap. **4**: 67-73 (Jan.) 1917.
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The Cytologic Diagnosis of Neoplasms, J. A. M. A. **81**: 519-522 (Aug. 18) 1923.
The Early Diagnosis of Cancer, Arch. Clin. Cancer Research **1**: 11-20, 1925.
The Study of Fresh Tissue as an Aid to Clinical Diagnosis, Treatment and Prognosis, S. Clin. North America **5**: 701-708, 1925.
The Cancer Cell and Nature's Defensive Mechanism, Surg., Gynec., & Obst. **41**: 783-793 (Dec.) 1925.
A Key to Diagnosis and Prognosis of Neoplastic Lesions of Bones, Radiology **8**: 277-281 (April) 1927.
Chronic Ulcer and Carcinoma of the Stomach, Am. J. M. Sc. **173**: 466-472 (April) 1927.
A Cytologic Key to the Diagnosis and Prognosis of Neoplasms, J. Lab. & Clin. Med. **13**: 354-365 (Jan.) 1928.
The Cancer Cell in General Practice, editorial, Surg., Gynec. & Obst. **47**: 566-567 (Oct.) 1928.
The Cancer Cell in the Practice of Medicine, Radiology **11**: 379-387 (Nov.) 1928.
The Malignant Cell, J. Cancer Research **13**: 167-172 (July) 1929.
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A Cytologic Study of Hodgkin's Disease, Lymphosarcoma and Lymphatic Leukemia, J. Cancer Research **14**: 394-399 (Aug.) 1930.
Neoplasms: Their Classification, Diagnosis and Prognosis, Texas State J. Med. **27**: 704-707 (Feb.) 1932.
MacCarty, W. C., and Broders, A. C.: Chronic Gastric Ulcer and Its Relation to Gastric Carcinoma: Review of 684 Specimens, Arch. Int. Med. **13**: 208-223 (Feb.) 1914.
MacCarty, W. C., and Haumeder, Eva: Has the Cancer Cell Any Differential Characteristics? Am. J. Cancer **20**: 403-407 (Feb.) 1934.
MacCarty, W. C.; Haumeder, Eva and Berkson, Joseph: A Differential Characteristic of Malignant Cells: Preliminary Report, Proc. Staff Meet., Mayo Clin. **8**: 38-45 (Jan. 18) 1933.
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Kroeze, R. G.: Unpublished data.
McCormack, C. J.: Biometric Studies of Endometrial Cells, Proc. Staff Meet., Mayo Clin. **10**: 24-29 (Jan. 9) 1935.
Mendes Ferreira, A. E.: Unpublished data.
Naidu, V. R.: The Value of Enlarged Nucleoli in the Diagnosis of Malignancy, Proc. Staff Meet., Mayo Clin. **10**: 356-360 (June 5) 1935.
Strohl, E. L.: Cytologic Study of a Suprarenal Tumor, Proc. Staff Meet., Mayo Clin. **10**: 353-355 (June 5) 1935.

being recognized with the low powers of the microscope. They will also of necessity have to become cytologists familiar with all conditions of cells of every tissue in the body.

In utilizing the ratio between nucleus and nucleolus for diagnostic and prognostic purposes, comparisons must be made only in cells of a particular tissue because the ratios differ greatly when one tissue is compared with another. Wherever the ratios have been studied the malignant cells have always large nucleoli by which they can be identified as malignant cells. The figures I have presented summarily are merely the averages. Each observer has made thousands of measurements, some of which have been published in detail and the rest of which are now in print.

In this necessarily brief report I can merely state the facts in the hope that other pathologists will take the time to look for them under similar technical conditions. Opinions based on failure to confirm these facts in fixed tissues that are not fresh and not embedded are not only of no value but will impede progress in the early recognition of cancer which all agree is so necessary for beneficial therapeutic results.

The cancer cell has identifying characteristics. Histology of the past and present and modern cytology are two very different sciences with quite different technics requiring a somewhat different training yet to be recognized by general pathologists and taught by them in a routine way to modern medical students.

Until medical students are taught this newer method, we cannot expect cancer to be recognized early.

TABLE 1.—*Biometric Measurements of Regenerative and Benign Cells*

Observer	Organ	Area of Nucleus, Square Microns	Area of Nucleolus, Square Microns	Ratio of Nucleus to Nucleolus
Haumeder	Breast	38.7	2.2	17:1
	Stomach	47.6	2.2	21:1
	Large intestine	42.7	2.5	17:1
	Ovary	39.3	1.7	23:1
	Uterus	33.6	1.1	30:1
	Kidney	46.4	2.7	17:1
McCormack	Uterus	51.7	1.4	36:1
Naidu	Breast	27.8	1.3	21:1
	Stomach	39.6	1.4	28:1
	Large intestine	39.1	1.1	35:1
	Skin	49.1	3.1	14:1
	Uterus (body)	35.6	1.2	27:1
	Uterus (cervix)	47.5	1.3	36:1
Strohl	Adrenal	49.7	1.9	25:1
Kroeze	Breast	35.8	1.5	22:1
Fairchild	Bone	63.1	2.2	25.9:1
Mendes Ferreira	Stomach	28.7	1.1	26:1
Kaump and Mendes Ferreira	Breast	28.4	1.57	19.5:1

TABLE 2.—*Biometric Measurements of Malignant Cells*

Observer	Organ	Area of Nucleus, Square Microns	Area of Nucleolus, Square Microns	Ratio of Nucleus to Nucleolus
Haumeder	Breast	45.5	4.2	11:1
	Stomach	66.9	7.1	9:1
	Large intestine	48.7	5.6	8:1
	Ovary	63.8	1.5	8:1
	Uterus	62.8	5.1	9:1
	Kidney	76.5	7.9	9:1
McCormack	Uterus	64.9	3.9	16:1
Naidu	Breast	59.3	3.4	17:1
	Stomach	54.1	3.3	16:1
	Large intestine	51.1	3.4	15:1
	Skin	81.8	6.4	12:1
	Uterus (body)	52.0	2.9	17:1
	Uterus (cervix)	64.2	2.4	26:1
Strohl	Adrenal	107.7	15.2	7:1
Kroeze	Breast	50.9	2.9	17:1
Fairchild	Bone:			
	Osteogenic sarcoma	58.9	3.3	18.9:1
	Fibrosarcoma	69.0	3.3	21.5:1
Mendes Ferreira	Stomach	42.9	3.2	14.9:1
Kaump and Mendes Ferreira	Breast: malignant papilloma	33.0	2.62	13.5:1

ABSTRACT OF DISCUSSION

DR. WILLIAM C. MACCARTY, Rochester, Minn.: Many cells from Hodgkin's disease, lymphatic leukemia and lymphosarcoma have been studied, measured and drawn. The question was asked with regard to the Sternberg cell, which in my opinion has nothing to do with Hodgkin's disease so far as its malignancy is concerned. The main cell which is malignant in Hodgkin's disease is the lymphoblastic cell and that certainly follows all rules of nucleonucleolar ratios. The Sternberg cell, an endothelial cell, cannot be compared with the other cells in Hodgkin's disease. The Sternberg cell, or Dorothy Reid cell, is not the important element in Hodgkin's disease. The lymphoblastic elements constitute the important one.

FEVER THERAPY IN TABES DORSALIS

RELIEF OF GASTRIC CRISES AND LIGHTNING PAINS BY THE USE OF THE KETTERING HYPERTHERM

A. E. BENNETT, M.D.
OMAHA

There have been many therapeutic opinions and no uniformity of agreement among men of much experience in the management of tabes dorsalis. Many authorities state that the disease tends to be progressive in spite of treatment. In the early stages many believe that the disease can be arrested and clinical cures obtained. In the late stages, the burned out seronegative phase, most reports of large series of cases are very discouraging, especially as to relief of intractable symptoms.

CHEMOTHERAPEUTIC RESULTS

The routine treatment of the tabetic patient as used by the majority of practitioners has been courses of arsphenamine, neoarsphenamine, mercury and bismuth salts with iodine therapy. These courses are kept up until the patient gives a persistent blood and spinal fluid seronegative response. Various modifications of this technic have been employed, as combined spinal drainage or added Swift-Ellis technic. In reviewing the literature it is noticeable that as various forms of fever therapy have increased the former popularity of the Swift-Ellis treatment has dwindled. Probably its benefit was solely from the febrile, aseptic meningeal reaction produced. At present it seems to be used only in isolated instances to relieve intractable pain.

Up to 1925 probably the best results obtainable in tabetic treatment by routine chemotherapy and special methods are summarized by Stokes and Shaffer.[1] Their technic consisted of vigorous treatment by arsphenamine, mercury and intravenous iodide therapy followed by Swift-Ellis injections. In 170 cases they report some relief from lightning pains in 73 per cent and excellent results in only 16 per cent; in another series

From the University of Nebraska College of Medicine, Department of Neurology and Artificial Fever Therapy Research.

Read before the Section on Nervous and Mental Diseases at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 14, 1936.

1. Stokes, J. H., and Shaffer, L. W.: Clinical Management and Response of the Tabetic Patient, J. A. M. A. **85**: 1271-1275 (Oct. 24) 1925.

of 124 cases, good results in 47 per cent and poor results in 52 per cent.

In the relief of "stomach trouble," excellent results were obtained in 42 per cent, good results in 37 per cent of twenty-four cases. In the relief of gastric crises, 24 per cent obtained a good result, 76 per cent poor results in seventeen cases. A complete response was obtained in only two cases, amelioration in 24 per cent and no relief in 23 per cent. A good result in cord bladder was obtained in 31 per cent, poor in 69 per cent of seventy-three cases. Ataxia was relieved in only 21 per cent of sixty-three cases. Other resistant symptoms, such as paresthesia and cranial nerve palsies, were relieved in from 24 to 73 per cent in smaller groups of patients. They found good results in 48 per cent of 170 patients and summarized:[2] "The tabetic has a 50-50 chance of securing a completely satisfactory result under systematic treatment." They added: "Lightning pains may prove intractable and persist long after signs of active meningitis disappear . . . the notorious persistence of lightning pains after the apparent arrest of degenerative process in some cases is one of the trying features of late tabes."

O'Leary and Nelson[3] in the same year found that they had relieved pains in fourteen out of twenty-two cases, gastric crises in six out of fifteen cases, although they had obtained complete negative spinal fluids. They concluded: "We have nothing new to offer in the treatment of patients with negative serologic tests who suffer from persistent gastric crises other than chordotomy, which seems to hold out more hope than any form of treatment that has been offered thus far."

Because of favorable results from tryparsamide therapy in dementia paralytica, the drug has received extensive trial in tabes dorsalis. In early tabetic patients some favorable reports are to be found. Paterson-Smyth[4] and David and Robert Lees[5] praise tryparsamide in early cases. Most observers, however, have found the results in tabetic patients disappointing. Wile and Wieder[6] were unable to relieve gastric crises and lightning pains with tryparsamide. Menzies[7] concluded that the results from tryparsamide therapy in tabetic patients were very disappointing, especially in securing relief from pain. He believes that malarial therapy is far superior. All agree that tryparsamide is dangerous in the face of tabetic optic atrophy.

More recently bismuth arsphenamine sulfonate (bismarsen) has been much used experimentally in the treatment of tabetic symptoms. Hadden and Wilson[8] improved 41 per cent of seventeen seronegative tabetic patients by forty injections. They found the drug reasonably effective in relieving pain, gastric crises, ataxia and cord bladders and considered it superior to tryparsamide. Tobias[9] and Fong[10] also reported favorable results in early tabes.

RADICAL TREATMENTS, INCLUDING OPERATIVE

Numerous special methods of more radical nature have been advocated for the relief of resistant tabetic symptoms that fail to respond to routine systematic therapy. Hassin[11] recommended epidural arsphenamine injections and reported some relief in pain and ataxia but no relief of gastric crises. He had severe complications in three cases. This method in my experience has been dangerous, because caudal neuritis is readily produced. In isolated cases forced spinal fluid drainage, spinal anesthesia, intravenous atropine, and insulin therapy are reported to relieve patients of certain resistant symptoms. The most radical procedure for the relief of tabetic pain and crises is the operative treatment. Resection of the posterior and anterior roots has been advocated since 1900. Of late years this procedure has been replaced largely by chordotomy. Even with this procedure, relapses of pain and crises are frequent and the mortality from the operation is high. It is certainly a procedure of last choice and offers nothing certain as to relief. My own experience has been unsatisfactory.[11a]

FEVER THERAPY IN TABES DORSALIS

Again the excellent results seen from various forms of fever therapy in dementia paralytica caused it to be employed extensively in the treatment of resistant tabetic symptoms. Isolated reports of benefit obtained by fever-producing agents such as sodoku, foreign proteins and sulfur in oil are to be found. The series of cases are too small to draw definite percentage results. Pyrifer, colon bacillus vaccine, has been popular abroad. Polozker and Altschuler[12] consider their results from its use better than from malarial therapy. They reported distinct improvements in five cases out of eight, and state that all patients obtained relief from pains.

Up to the present the most extensive experimentation in fever therapy for the relief of tabetic symptoms has been the use of malarial fever inoculation. In attempting to evaluate results we again find marked discrepancy of opinion, varying from Roger,[13] who thinks that malarial results in tabes have not been constant enough to justify its use, to Bering,[14] who reports 75 to 80 per cent improvement. The following investigators have treated rather large series of patients: Hoff and Kauders,[15] Dreyfus and Hanau,[16] Driver, Gammel and Karnosh,[17] Ebaugh,[18] Wile and Davenport,[19] Yates,[20] O'Leary and Welsh,[21] and David and Robert Lees.[5] The percentage of improvement reported varies from 34 to 75. One can conclude fairly that

2. Stokes, J. H., and Shaffer, L. W.: Results Secured by Standard Methods of Treatment in Neurosyphilis, J. A. M. A. **83:** 1826-1831 (Dec. 6) 1924.
3. O'Leary, P. A., and Nelson, M. O.: Significance of Normal Spinal Fluid in Cases of Neurosyphilis, J. A. M. A. **85:** 1276-1280 (Oct. 24) 1925.
4. Paterson-Smyth, G. N.: Treatment of Syphilis of Nervous System, Canad. M. A. J. **31:** 72-75 (July) 1934.
5. Lees, David, and Lees, Robert: Diagnosis and Treatment of Neurosyphilis, Edinburgh M. J. **39:** 173 (Nov.), 201 (Dec.) 1932.
6. Wile, U. J., and Wieder, L. M.: Tryparsamide in the Treatment of Neurosyphilis, J. A. M. A. **83:** 1824-1826 (Dec. 6) 1924.
7. Menzies, E. C.: A Review of the Progress and Results in 41 Cases of Paresis and Tabo-Paresis Treated with Tryparsamide, Canad. M. A. J. **20:** 242-246 (March) 1929.
8. Hadden, S. B., and Wilson, George: Bismuth Arsphenamine Sulfonate (Bismarsen) in the Treatment of Tabes Dorsalis, Am. J. Syph. **15:** 316-319 (July) 1931.
9. Tobias, N.: Clinical Results from the Use of Bismarsen in Tabes Dorsalis, Am. J. Syph. **12:** 536-541 (Oct.) 1928.
10. Fong, C. C.: The Treatment of Neurosyphilis, M. Ann. District of Columbia **3:** 217-222 (Aug.) 1934.
11. Hassin, G. B.: Treatment of Tabes Dorsalis by Epidural Injection of Neoarsphenamine; Preliminary Report, J. A. M. A. **90:** 605-607 (Feb. 25) 1928.
11a. Bennett, A. E.: Atypical Tabes Dorsalis (Forme Fruste): Surgical Errors in, with Leading Points in Diagnosis, Am. J. M. Sc. **170:** 538 (Oct.) 1925.
12. Polozker, I. L., and Altschuler, Ira: Pyrifer in the Treatment of Locomotor Ataxia, J. Michigan M. Soc. **30:** 148-150 (March) 1931.
13. Roger, H.: Pyretherapy in Disease of Nerve Syphilis, J. de med. de Paris **54:** 1022, 1934.
14. Bering, F.: Die Behandlung Tabes mit Malaria, Deutsche. med. Wchnschr. **52:** 1611-1613 (Sept. 17) 1926.
15. Hoff, H., and Kauders, O.: Ueber die Malaria Behandlung der Tabes Dorsalis, Ztschr. f. d. ges. Neurol. u. Psychiat. **104:** 306-322, 1926.
16. Dreyfus, G. L., and Hanau, R.: Malaria Behandlung der Lues Cerebrospinalis und Tabes, Klin. Wchnschr. **6:** 590 (March 26) 1927.
17. Driver, J. R.; Gammel, J. A., and Karnosh, L. J.: Malaria Treatment of Central Nervous System Syphilis, J. A. M. A. **87:** 1921-1927 (Nov. 27) 1926.
18. Ebaugh, F. G.: Treatment of Tabes and Cerebral Syphilis with Malaria, J. A. M. A. **91:** 1020-1023 (Oct. 6) 1928.
19. Wile, U. J., and Davenport, K. M.: The Malarial Therapy of Neurosyphilis other than Uncomplicated Dementia Paralytica, J. A. M. A. **97:** 1579-1585 (Nov. 28) 1931.
20. Yates, A. G.: Treatment of Tabes with Malaria, Lancet **2:** 1335-1337 (Dec. 15) 1934.
21. O'Leary, P. A., and Welsh, A. L.: Treatment of Neurosyphilis with Malaria, J. A. M. A. **101:** 498-501 (Aug. 12) 1933.

about 50 per cent of all types of tabetic patients are benefited by malarial therapy. Most observers agree that the tabetic patient is not able to stand malarial inoculation nearly as well as the paretic patient. Its use is contraindicated in advanced ataxic states or with complicated associated infectious processes such as cord bladder.

The mortality from malarial complications in tabes dorsalis is high. David and Robert Lees [5] report 10 per cent mortality, Carrière [22] 17.62 per cent. Vonderlehr,[23] listing all cases of malarial therapy in parenchymatous neurosyphilis, reported a total from 1923 to 1931 of 8,038 and found that 23.4 per cent of the patients had died. Deaths from malaria and other causes were not separated. In 123 cases, a mortality of 16.3 per cent was specifically caused by malaria. Karnosh and Williams [24] found 12.7 per cent mortality from malaria in 580 patients.

Neyman and Koenig [25] had a malarial mortality of 18 per cent in fifty paretic patients, 10 per cent from sodoku in fifty, and no mortality from diathermy in fifty. O'Leary and Welsh [21] found a beneficial effect from malaria in about half of tabetic and taboparetic patients with a positive spinal serologic reaction. The serologic negative patients with resistant symptoms were only slightly benefited. In twelve such cases, although 22 per cent were benefited to some degree, only 1 per cent were entirely relieved.

These observations leave much to be desired in results from the malarial therapy of tabetic patients. While resistant symptoms of tabes are often strikingly relieved by malarial therapy, still the total percentage of improvement by its use is not much if any better than from systematic routine chemotherapy. In addition there is a high mortality from the direct complications of the malarial infection. In the advanced stages of tabes its use is dangerous, since the single tertian strain quickly becomes a double infection and patients are rarely able to stand more than eight paroxysms of fever. In cases in which results are needed, malaria gives the poorest relief. In early stages other less rigorous therapy will give equally good results.

Of recent years an intense research program has been under way in many centers in an effort to estimate the value of artificial fever therapy by physical means. Major evidence favors fever therapy from any source as being the effective agent in neurosyphilis. Sufficient time has not elapsed to determine the effectiveness of various forms of physical heat therapy in large series of cases. However, encouraging results are being reported: Beerman, Hirschfeld, Epstein and Paul [26] treated twenty tabetic patients with diathermy. They reported seventeen cases, nine of which were relieved of severe pains and crises, three were generally improved, and three unimproved. They stated: "The remarkable influence of treatment upon severe crises and pain cannot be overemphasized." Nelson [27] reported a small series of cases treated with low temperature diathermic treatments with striking relief of pain.

Simpson [28] in a recent extensive report on the use of artificial fever therapy by means of the Kettering hypertherm in syphilis found striking relief in ten cases of tabes dorsalis and seven cases of the tabetic form of dementia paralytica. He obtained relief in all cases of gastric crises and lightning pains. Of the fourteen ataxic patients, ten showed improvement in gait. Two with cord bladders were restored to normal function. Mehrtens and Pouppirt [29] reported that lightning pains, gastric crises and Charcot joints yielded to hot baths more readily than to any other therapy previously used.

At the University of Nebraska through the courtesy of Charles F. Kettering and Dr. Walter Simpson, we have been permitted to experiment with artificial fever therapy by the use of the Kettering hypertherm in a large variety of infectious diseases. By means of the hypertherm, or air conditioned cabinet, we are able readily and safely to develop and sustain patients' temperatures at any desired level. The technic employed in our clinic has been that advised by Simpson. In neurosyphilis we have given fifty hours of fever from 105 to 106 F. in ten sessions, combined with some form of chemotherapy. By this technic we are able to give our patients about twice as much fever as ordinarily is obtained from twelve malarial paroxysms.

The following report is limited to results obtained up to date in the treatment of tabes dorsalis in twenty-four cases at the University of Nebraska, fourteen of which have completed a prescribed course of treatment. Through the courtesy of Dr. F. G. Ebaugh we have been permitted to report six additional cases from the University of Colorado Fever Therapy Research department. The patients have all received chemotherapy with fever; the majority have received 0.2 Gm. of arsphenamine bismuth sulfonate each week at the same time at which they received five hours of artificial fever of 105 to 106 F. for a total of ten treatments, or fifty hours of fever therapy. Most of these patients had previous intensive therapy but were referred to the department because of chronic resistant symptoms.

REPORT OF CASES

Twenty-four patients with a predominantly spinal cord type of chronic syphilis have been under treatment. Twenty-three cases are tabes dorsalis, with one case of meningomyelitis. Fourteen patients have completed the prescribed course of artificial fever therapy combined with chemotherapy. Four patients discontinued treatments and six are still under treatment at the time of this report.

The ages in the fourteen completed cases varied from 33 to 58 years, the average age being 43 plus years. There were three women and eleven men. The average duration of the infection was 21.5 years. All but three patients had received previous systematic routine chemotherapy. Several patients had received additional special types of therapy directed toward symptomatic relief of intractable pains and crises. One patient had tried high voltage roentgen therapy for relief of pains, and two patients had taken courses of malarial fever therapy without relief. Two patients had received Swift-Ellis intraspinal injections and one had finally been advised to have a chordotomy performed.

22. Carrière (quoted by Paterson-Smyth, Treatment of Syphilis of Nervous System, p. 74).
23. Vonderlehr, R. A.: Malaria Treatment of Parenchymatous Syphilis of the Central Nervous System, Supp. 107 to Public Health Records, Washington, 1933.
24. Karnosh, L. J., and Williams, G. H.: Some Unusual Complications in Malarial Therapy, Ohio State M. J. **31**: 193-196 (March) 1935.
25. Neyman, C. A., and Koenig, M. T.: Treatment of Dementia Paralytica: Comparative Therapeutic Results with Malaria, Rat Bite Fever and Diathermy, J. A. M. A. **96**: 1858-1860 (May 30) 1931.
26. Beerman, W.; Hirschfeld, M.; Epstein, N., and Paul, S. B.: Neurosyphilis—Its Treatment with Hyperpyrexia Produced by Diathermy, California and West. Med. **40**: 177-184 (March) 1934. Epstein, N. N., and Paul, S. B.: The Treatment of Syphilis with Hyperexia Produced by Diathermy, Am. J. Syph. **17**: 72-81 (Jan.) 1933.
27. Nelson, O. L.: Diathermy in the Treatment of Neurosyphilis, M. Bull. Vet. Admin. **11**: 223-228 (Jan.) 1935.
28. Simpson, W. M.: Artificial Fever Therapy of Syphilis, J. A. M. A. **105**: 2132-2140 (Dec. 28) 1935.
29. Mehrtens, H. G., and Pouppirt, P. S.: Hyperexia Produced by Baths, Arch. Neurol. & Psychiat. **22**: 700-708 (Oct.) 1929.

The predominant resistant tabetic manifestations for which treatment was advised were lightning pains and gastric crises, and this preliminary study is directed mainly toward the problem of relieving these symptoms. All but one patient of the completed cases had been having active gastric crises or lightning pains or both symptoms at the time therapy was begun. The duration of the gastric crises and pains varied from one to fourteen years. Seven patients had suffered for periods of five years or longer. Eight of these fourteen cases were considered well advanced types of tabes dorsalis. Five patients were incapacitated at least half the time; two patients had associated morphine addiction. Eight patients had mild to severe grades of ataxia and one patient (meningomyelitis) had a spastic paraplegia. Three patients had associated cord bladders. Other associated tabetic symptoms were trophic ulcers, Charcot joints, paresthesias, optic atrophy, oculomotor palsies, undernutrition, vertigo, trigeminal neuralgia and impotence.

All patients had positive neurologic signs of tabes dorsalis, the usual triad being Argyll Robertson pupils, absent leg tendon reflexes and signs of proprioceptive dysfunction. Four cases were considered "burnt out" or seronegative spinal fluid types. Ten patients had varying degrees of positive serologic response in the blood and spinal fluids.

Eleven patients were given bismuth arsphenamine sulfonate therapy (0.2 Gm.) with each fever treatment. Nine patients received fifty hours or more of artificial fever above 105 F. Five patients received thirty hours or more above 105 F., with treatments discontinued because of complete relief of complaining symptoms. We have usually seen prompt relief in the tabetic pains after the sixth and seventh treatments; that is, from thirty to thirty-five hours of fever therapy. Twelve patients of the fourteen have remained free from gastric crises and pains from three months to one year. One patient was not having active pains at the time treatment was being given but was very ataxic; one patient has had a recurrence of pains to a mild degree; since he had taken only thirty hours of fever therapy, he was advised to return for more treatment. Five of the eight ataxic patients obtained marked improvement in ataxia; three patients showed little if any change in ataxia. The spastic patient felt stronger but there was no objective change in the paraplegia; the root pains, however, were completely relieved. Two patients with cord bladder were markedly improved and one was unimproved. Patients reported other improvement or relief, as increased general strength, gain in weight, relief of headaches or improvement in paresthesias; one each reported relief from trigeminal neuralgia and from persistent vertigo.

The reasons for discontinuing treatments in the four patients were as follows: One patient living out of the city was unable to make the trips. Two patients failed to cooperate and discontinued of their own accord. One patient displayed emotional instability, causing us to advise stopping treatment.

The patients now under treatment have not been followed sufficiently long to warrant expressing an opinion. Two have very severe types of tabes, one with coronary disease able to take only short fever sessions and another with totally disabling gastric crises unrelieved by malarial therapy, obtaining relief after the seventh fever session.

No unusual complications during treatment of our tabetic patients were observed that are not seen in other neurosyphilitic patients. One has to watch closely for hyperpyrexia and cerebral edema while the patient is in the cabinet. We feel on the whole that the tabetic group have to be managed with greater care than the dementia paralytica group. However, our clinic has had fewer fever therapy complications in the tabetic group than with the meningovascular neurosyphilis group; in the latter, cardiovascular complications seem more frequent.

Dr. F. G. Ebaugh in a personal communication has reported to me six tabetic cases that have been under artificial fever therapy at the University of Colorado. Four patients with severe intractable gastric crises and pains completed the prescribed course of fever therapy combined with tryparsamide. These four patients received forty or more hours of fever therapy and all obtained marked relief from gastric crises and pains. One patient with cord bladder was relieved and one markedly ataxic patient was improved in gait. One patient's treatments were incomplete and one had a recurrence of lightning pains.

SUMMARY

A review of the literature indicated that resistant tabetic symptoms such as lightning pains, gastric crises, ataxia and bladder dysfunction can be relieved in only about 50 per cent of patients by means of very vigorous chemotherapeutic procedures.

Likewise a review of so-called infectious fever therapy methods, particularly malarial fever therapy, does not show relief of intractable symptoms in over 50 per cent of tabetic patients. The mortality rate of malarial therapy ranges from 10 to 20 per cent.

A combination of artificial fever therapy by means of the Kettering hypertherm and chemotherapy has uniformly relieved intractable lightning pains and gastric crises in eleven patients. These results were obtained after other active therapeutic measures had failed. Other resistant tabetic symptoms, such as ataxia, cord bladders, paresthesias and head pains, were likewise improved in the majority of fourteen cases. Four of our patients were in the so-called burnt out stages.

I believe that this method of treating tabes dorsalis is the best method yet devised.

ABSTRACT OF DISCUSSION

DR. HENRY W. WOLTMAN, Rochester, Minn.: The lightning pains and crises of tabes have been particularly obstinate in their refusal to respond to treatment, and any method of therapy that has offered such uniformly successful results deserves consideration. When malarial therapy was introduced some fifteen years ago, hopes were raised, even though improvement of these particular symptoms occurred in only about 50 per cent of cases. But the length of time that malaria as a therapeutic agent has been in use must also be stressed, for in the years that followed, it was found that even 50 per cent was too high a figure. It has also been learned that by paying attention to certain features in its use the mortality rate could be reduced considerably. Now it stands at about 0.4 per cent, which is the figure found by O'Leary in the treatment of his last 800 cases. This has been achieved by paying attention to certain features. In the first place, patients who are over 60 years of age, those who have a cord bladder with an associated pyelitis, those who have predominantly vascular disorders, and those who have progressive optic atrophy do not tolerate malaria well. Furthermore, the complications that arise in the course of malarial therapy must be taken in hand promptly. This can be done best by the administration of dextrose and saline solution intravenously. The appearance of jaundice should not be taken too lightly. Marked dehydration and loss

of salt call for replacement. There is a danger point to which Dr. O'Leary has called attention. If, in the course of the malarial paroxysms the blood urea rises and the blood pressure drops, and if this course cannot be checked by the immediate administration of dextrose and saline solution, the point is soon reached at which the rise in blood urea and the fall in systolic blood pressure crosses. This point is an indication for terminating the malaria. The Kettering hypertherm in experienced hands, such as those of Dr. Bennett, has advantages. The degree of hyperthermia can be controlled, making this safer in patients who are debilitated. Furthermore, if the future course of the cases Dr. Bennett has reported indicates a repetition of fever therapy, it can be done with the hypertherm, whereas this cannot very well be done by trying to reinoculate the patient with malaria. Dr. Bennett's efforts deserve our warm commendation. He has again raised our hopes that something may be done for these people and we shall await his further reports with interest.

DR. A. E. BENNETT, Omaha: In answer to the question about vasomotor collapse, this complication has been observed in about 1.5 per cent of the cases. It has not been more frequent in the tabetic than in the meningovascular group. Strict attention is paid to this sign and the treatment is stopped when the patient shows such phenomenon. I didn't want to leave the impression that we think these results will hold up. As Dr. Woltman has pointed out, we were encouraged over malarial therapy but have become more and more discouraged. I have no doubt that there will be relapses in this group from time to time. I simply offer this as a preliminary study and hope to follow with a larger series over a long period.

A NEW PROCEDURE FOR THE CONTROL OF BENZENE EXPOSURE

H. H. SCHRENK, PH.D.
Chemist in Charge, Toxicological and Biochemical Laboratory, Health Laboratory Section, U. S. Bureau of Mines, Pittsburgh Experiment Station

W. P. YANT, B.S.
Supervising Chemist, Health Laboratory Section, and Supervising Engineer, U. S. Bureau of Mines, Pittsburgh Experiment Station

PITTSBURGH
AND

R. R. SAYERS, M.D.
Surgeon, U. S. Public Health Service
WASHINGTON, D. C.

Serious or measurable damage from exposure to benzene or any gas or vapor, obviously, can be prevented if the concentration of the contaminant and duration of exposure are so controlled that the amount absorbed is insufficient to produce damage. Unfortunately the procedures and information necessary for such control are frequently inadequate or completely lacking. As knowledge and understanding of the phenomena that accompany exposure to a gas or vapor increase, the possibility of more perfect control of the industrial disease hazards also increases.

The commonly used procedures for the control of chronic benzene poisoning are examination of the blood, particularly for evidence of anemia and leukopenia, and determination of the amount of benzene in the atmosphere. The Bureau of Mines has recently developed a microcolorimetric method [1] which has many desirable features for industrial hygiene surveys. Owing to the fact that as little as 0.001 mg. of benzene can be detected, the method is also valuable for the determination of the small amounts of benzene present in tissues and fluids in chronic poisoning.

The estimation of the toxic qualities of air from the amount of benzene present and correlation with experience and toxicologic information and data are not only useful from the point of view of control of exposure but are frequently necessary as a confirmation of a clinical diagnosis of poisoning. Chemical determinations of the atmospheric contamination are especially valuable when the persons are exposed to a rather constant concentration of benzene. However, usually the exposure is intermittent to a wide variation of concentrations, both daily and seasonal. These variations make it difficult, if not often practically impossible, to estimate the overall exposure.

In any case it is desirable to examine the exposed persons for manifestations of poisoning. The action of benzene on the hematopoietic system is well known. The occurrence of anemia, leukopenia and other changes in cell counts, such as a relative increase in the percentage of lymphocytes and decrease in polymorphonuclear leukocytes and a decrease in the number of platelets, is also considered in the diagnosis of benzene poisoning. Although none of these criteria or manifestations are specific, they accompany benzene poisoning; and the use of periodic examinations of the blood of persons exposed and observing for trends in the series of results obtained is an established procedure for the detection of benzene poisoning. Owing to the normal variations in hemoglobin content and number of blood cells and the inherent errors in the usual clinical methods of determining these constituents, a single blood examination is never satisfactory. Also, under no conditions do the usual blood examinations reveal either conditions of exposure which may produce serious poisoning if the exposure is continued or oncoming poisoning before it has progressed to the stage of determinable anemia and leukopenia. While practical application of the method has demonstrated its value, the difficulties and limitations were apparent and the importance of a better method was recognized.

In an investigation of chronic benzene poisoning conducted by the Bureau of Mines with the cooperation of the producers of benzene and The Barrett Company, observations were made during all phases of the work for striking and reliable physiologic criteria of potentially harmful exposure or indication of oncoming benzene poisoning which would be easily determined before the organism was damaged and avoid as many as possible of the disadvantages and limitations of the present procedures. The results obtained indicated that the changes in the urine sulfates might serve as an excellent measure of benzene exposure.

URINE SULFATE TEST

A correlation of the results obtained from the study of benzene poisoning revealed that exposure to benzene caused a striking, easily measurable, consistent and rapidly occurring decrease in the percentage of inorganic sulfates of the total sulfates in the urine. The decrease occurred far in advance of anemia, leukopenia or signs of harm and was quantitatively related to the benzene exposure regardless of whether the exposure was for a long period to a low concentration or for a short period to a high concentration.

Normally the percentage of inorganic sulfates of total sulfates is from 85 to 95 per cent, the remaining 5 to 15 per cent being conjugated. On exposure to

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Contribution from the Pittsburgh Experiment Station.
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Read before the Section on Preventive and Industrial Medicine and Public Health at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 13, 1936.

1. Schrenk, H. H.; Pearce, S. J., and Yant, W. P.: A Microcolorimetric Method for the Determination of Benzene, U. S. Bureau of Mines Report of Investigations 3287, 1935.

benzene there is a shift in the equilibrium of the system, inorganic ⇄ conjugated sulfates, to the right. This shift may proceed to the point of complete elimination of the inorganic sulfates.

The extent of benzene absorption is directly related to the decrease in percentage of inorganic sulfates; that is, the greater the decrease the greater the absorption. In practice the total sulfates and inorganic sulfates in the urine are determined and the percentage

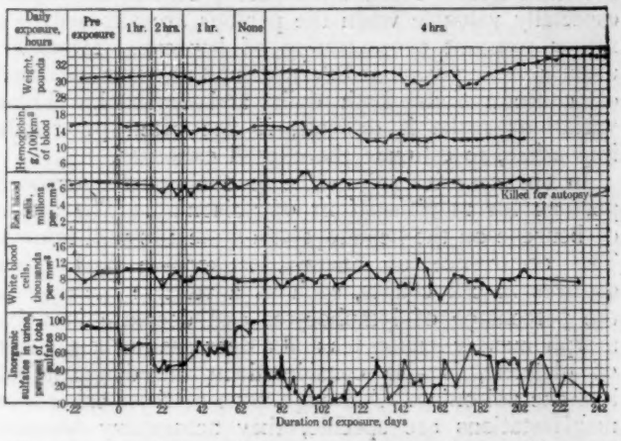

Chart 1.—Dog 559, exposed one, two and four hours daily to 800 parts per million of benzene vapor in air by volume.

of inorganic of the total sulfates is calculated. A single specimen is satisfactory, and the volume or specific gravity of urine excreted is not necessary.

EXPERIMENTAL PROCEDURES AND APPARATUS

The benzene used in the majority of experiments was of such purity that it may safely be regarded that the effects were due to inhaling vapors of C_6H_6. Animals were also exposed to vapors of commercial and crude benzene and the response was similar to that with pure benzene, indicating that the impurities in even crude benzene do not inhibit the sulfate response.

The test apparatus has been described [2] previously and has been used in many similar experiments. The concentrations could be readily controlled within the limits of ± 10 per cent of the desired concentration. A metal tray covered with fine wire screen to prevent contamination of the urine samples with food and feces was placed in the bottom of the cages. The trays were designed to drain rapidly into glass bottles. The suitability of this procedure was confirmed by normal results observed for preexposure specimens and by checking the results of pan-collected specimens with catheterized specimens.

The total and inorganic sulfates were determined by the Folin [3] method. Owing to an observed tendency in some specimens for the conjugated sulfates to hydrolyze, thereby increasing the percentage of inorganic sulfates when kept at room temperature for from one to several days, it was considered advisable to analyze the urine samples for inorganic sulfates as soon after collection as possible, at least within twenty-four hours and preferably within twelve to sixteen hours after the specimen was voided. The tendency for the hydrolysis to occur was decreased by keeping the specimens in a refrigerator.

SCOPE OF WORK

Sulfates were determined in the urine of dogs exposed to accurately controlled concentrations of benzene vapor, which ranged from those which produced no evidence of benzene poisoning to those which produced mild to fatal poisoning. Also, approximately sixty persons engaged in work which entailed some contact with benzene were examined.

RESULTS OF LABORATORY INVESTIGATION

The total and inorganic sulfates were determined in the urine from seventy-nine dogs. As the data obtained are quite voluminous, the results of only a few pertinent experiments, which show the nature of the response, will be presented. It may be stated, however, that the changes exemplified and discussed occurred in every experiment without exception.

Chart 1 shows graphically the weight, amount of hemoglobin, number of erythrocytes and leukocytes and percentage of inorganic of total sulfates in the urine of dog 559. This dog was exposed to 800 parts per million of benzene vapor in air one hour daily for sixteen days, two hours daily for sixteen days, one hour daily for twenty-six days, no exposure for fifteen days, and finally four hours daily for 175 days. The daily duration of exposure was varied in order to study the relation between length of exposure and decrease in percentage of inorganic sulfates when the concentration of benzene in the air was kept constant.

An exposure of one hour daily to 800 parts per million caused a definite and rapid decrease in the percentage of inorganic sulfates of total sulfates in the urine from a preexposure value of above 90 per cent to from 65 to 70 per cent. An increase in the period of exposure to two hours daily caused the proportion of inorganic sulfates to decrease to a range of from

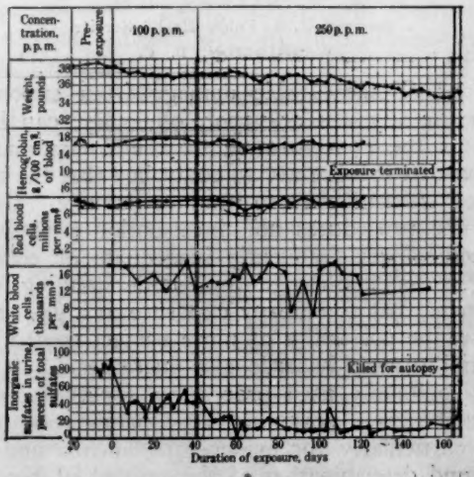

Chart 2.—Dog 563, exposed eight hours daily to 100 parts per million and later to 250 parts per million of benzene vapor in air by volume.

40 to 50 per cent. On changing the period of exposure from two hours back to one hour daily, the percentage of inorganic sulfates increased to a range of the same order previously found for a one-hour exposure period. When the exposure to benzene was recessed, the sulfates rapidly returned to preexposure values. Resuming the exposure, the period was changed to four hours daily, and again there was a rapid and marked decrease in the percentage of inorganic sulfates.

2. Yant, W. P.; Schrenk, H. H., and Sayers, R. R.: Methanol Antifreeze and Methanol Poisoning, Indust. & Engin. Chem. **23**: 551, 1931.

3. Folin, Otto: On Sulfate and Sulfur Determinations: J. Biol. Chem. **1**: 131, 1905-1906. The procedures are given in various books on physiologic chemistry, such as: Hawk, P. B., and Bergeim, Olaf: Practical Physiological Chemistry, Philadelphia, P. Blakiston's Son & Co., 1927, pp. 770-771. Mathews, A. P.: Physiological Chemistry, New York, William Wood & Co., 1924, pp. 1105-1106. Peters, J. P., and Van Slyke, D. D.: Quantitative Clinical Chemistry, Baltimore, Williams & Wilkins Company, 1932, vol. 2, pp. 892-893.

Neither the blood counts, hemoglobin determinations, weight nor objective signs or symptoms showed definite or positive indications of benzene poisoning.

Chart 2 shows graphically the weight, amount of hemoglobin, number of erythrocytes and leukocytes and percentage of inorganic sulfates of total sulfates in the urine of dog 563. This dog was exposed to 100 parts per million of benzene vapor in air eight hours daily during forty-one days and then to 250 parts per million eight hours daily for a total of 124 days.

The exposure of eight hours daily to 100 parts per million of benzene vapor caused a definite and rapid decrease in percentage of inorganic sulfates, and a further decrease was produced when the concentration was increased to 250 parts per million. The blood counts, hemoglobin determinations, weight and objective signs or symptoms were not of diagnostic significance.

The fluctuation of the sulfates with the severity of the exposure and immediate return to preexposure values on recessing the exposure shows not only the sensitivity but also the quantitative relationship between the severity of exposure and decrease in the percentage of inorganic sulfates of total sulfates in the urine. The rapid return to normal indicates that the sulfate change is a chemical measure of exposure and not a measure of damage.

From one to two exposures to as little as 100 parts per million eight hours daily usually produced a definite decrease. The maximum decrease, for a particular exposure, occurred after from five to six exposures. The rate and magnitude of change increased rapidly with increase in concentration above 100 parts per million. With exposures that produced benzene poisoning the decrease occurred days, weeks and even months in advance of any manifestations of anemia or leukopenia or changes in weight. The interval between the decrease in organic sulfates and the blood manifestations of poisoning depended on the exposure and was longer with decreasing severity of exposure.

PLANT INVESTIGATIONS

The laboratory studies indicated the possible use of the results of urine sulfate determinations for the control of benzene exposure. A study was made, therefore, of persons exposed to benzene in industry.

The study was made at five plants where persons were engaged in making and using benzene containing dopes and coatings for artificial leather and oil cloth; benzene containing rubber cement in the manufacture of shoes and rubber goods; and in the production of benzene. In some instances the benzene vapor was accompanied by other vapors such as ethyl alcohol, ethyl acetate, butanol and gasoline. From chemical considerations it is not apparent that the exposure to these compounds, other than benzene, or their products of metabolism, would produce a significant change in the urine sulfates. A total of sixty plant employees (fifty-nine male and one female) who had contact with benzene even though remote for some individuals and thirty-three (male) control persons who had no benzene contact were studied. The control group consisted of approximately 25 per cent shop workers, 25 per cent inside laborers and 50 per cent laboratory workers. The inorganic and total sulfates in the urine, and the hemoglobin, number of red and white blood cells and platelets in the blood were determined. The concentration of benzene in the air was determined at various locations in the plants.

Table 1 shows the percentage of inorganic sulfates of total sulfates in the urine of controls and plant employees. The percentage of inorganic sulfates of total sulfates in the control group ranged from 81 to 100, with 81.8 per cent of the values being 85 or above. Only 36.7 per cent of the plant employees fell within the same range as the controls, 23.3 per cent being in the range of 70 to 80, 20 per cent from 60 to 69, and 20 per cent below 59, the lowest value being 24. These results show definitely that the percentage of inorganic of total sulfates in the urine of the exposed group is generally lower than in the unexposed group. Even though no cases of benzene poisoning were considered to exist among these persons at the time of this study, the results in table 1 indicate benzene absorption in 63.3 per cent of the persons and a significant absorption in at least 20 per cent.

Data were obtained also for hemoglobin, erythrocytes, leukocytes and platelets in the blood of these persons. Some of the values were in the range that might be considered as indicative of a tendency toward a beginning anemia or leukopenia. However, from two to three times the number of persons showed the sulfate response as showed any kind of blood manifestations of response to benzene exposure. Briefly,

TABLE 1.—*Percentage of Inorganic Sulfates of Total Sulfates in the Urine of Controls and Plant Employees*

Inorganic Sulfates: Percentage of Total Sulfates	Percentage of Total Persons Examined	
	Controls (33)*	Plant Employees (60)*
85 to 100	81.8	16.7
81 to 84	18.2	20.0
70 to 80	0.0	23.3
60 to 69	0.0	20.0
50 to 59	0.0	8.3
40 to 49	0.0	8.3
30 to 39	0.0	1.7
24† to 29	0.0	1.7

* Number of persons in group.
† Lowest value found.

the data obtained showed the sulfate response to be much more sensitive, consistent and reliable than the response of the hemoglobin, erythrocytes, leukocytes and platelets.

The change in blood cell counts and amount of hemoglobin are due to a response of the hematopoietic system, whereas the sulfate response appears to be a chemical reaction and a measure of the exposure. It is possible that some of the persons exposed to benzene who had a low percentage of inorganic sulfates in the urine and gave no evidence of anemia or leukopenia would eventually show such tendencies if the same exposure was continued. On the other hand, evidence of leukopenia and anemia may be present without a decrease in inorganic sulfates if the exposure which produced the hematopoietic response had ceased and time enough for recovery of the hematopoietic system had not elapsed.

Table 2 shows the relationship between the concentration of benzene in the air, the response of the urine sulfates and the blood manifestations of benzene exposure. In considering the results it must be borne in mind that the concentrations found represent the atmosphere at the particular point and time the sample was taken. Although the samples were taken in breathing zones, where the maximum exposure of workmen would be expected, the values obtained cannot be considered as closely representative of the all day exposure or the everyday composition of the atmosphere, even at the point sampled. There are many obvious factors

which alter the concentration of a contaminating vapor in the air actually breathed. The determinations made, however, quantitatively confirm the presence of benzene and give a general measure of the amount to which the workmen were exposed during a part, at least, of their day's work at the time the investigation was made.

A total of fifteen determinations of benzene in the air were made in the plant study. In table 2 these results are presented in four range groupings for convenience in making a correlation with the percentage of inorganic sulfates in the urine, and hemoglobin, erythrocytes, leukocytes and platelets in the blood of the plant employees.

The average for the urine sulfates in group 1 is in the range of normal values. This is in keeping with the low concentration of benzene from 13 to 23 parts per million found in the air and the observed cleanliness of the working places of these particular employees. The average results for blood examinations are within a normal range.

The average values of the urine sulfates for groups 2 and 3 are similar and show a moderate though distinct decrease, although the values for the air concentrations vary considerably. The reason for the apparent irregularity in the relation of sulfate response to benzene exposure is that the employees of group 2 made frequent trips through other parts of the plant where the benzene concentration was greater, whereas group 3 was not exposed continually to the concentration shown. The average results for blood examinations of this group were within a normal range.

TABLE 2.—*Relationship Between Benzene Concentration in Air, Response of Urine Sulfates and Blood Manifestations of Plant Employees*

			Average Value for				
Group No.	Number of Men	Concentration of Benzene, P.p.M.	Percentage of Inorganic of Total Sulfates	Hemoglobin, per Cent, Sahli	Red Blood Cells, Millions	White Blood Cells, Thousands	Platelets, Thousands
1	14	13-23	85	91	4.9	7.5	158
2	8	19-50	70	90	4.6	6.5	141
3	22	123-132	72	85	4.5	6.4	151
4	13	158-372	55	85	4.6	6.8	124

Group 4, which represents those employees exposed to the highest concentration of benzene found by analysis and also by an observation of the working conditions, showed a marked decrease in inorganic sulfates. The average results for blood examinations of this group with the possible exception of the number of platelets were within the normal range.

In general, table 2 indicates that the decrease in urine sulfates is a much more sensitive and distinct indication of response to benzene exposure than the blood manifestations.

SUMMARY

The commonly used procedures for controlling benzene poisoning consist of determining the amount of benzene vapor in the air and examining the persons exposed for manifestations of anemia and leukopenia. These methods either alone or in combination are not entirely satisfactory. Owing to daily and seasonal variations in the concentration in the air it is practically impossible to determine the overall or average concentration to which workmen are exposed. Blood manifestations of diagnostic significance do not occur until after sufficient damage has been produced to affect adversely the functioning of the hematopoietic system.

The percentage of inorganic of total sulfates in the urine has been found to decrease on exposure to benzene. The decrease is quantitatively related to the severity of the exposure; that is, increase in severity of exposure, whether due to continued exposure to a low concentration or a short exposure to a high concentration, causes a more marked decrease in the percentage of inorganic of total sulfates. The response is consistent, reliable and occurs in advance of anemia, leukopenia or other manifestations of benzene poisoning. Only a single "grab" specimen of urine is necessary, and the method of analysis is simple and easily carried out.

ABSTRACT OF DISCUSSION

DR. HENRY FIELD SMYTH, Philadelphia: I was privileged to see some of this work a year ago and felt that it was a very interesting, suggestive contribution and that it would be of great help in industry in evaluating the exposure of workers. The experiments checking the work with employees in the plant follow out the suggestions of animal experimental work and if it is assumed that approximately 100 parts per million is the safe limit for workers, as suggested by the National Safety Council Survey, this is a method which apparently will indicate when a man is exposed to overdose. In the paper on animal experimentation, reference was made to using carbon tetrachloride, which was not mentioned here. Carbon tetrachloride will have the opposite effect. It produces liver damage and interferes with conjugation of sulfates. Research workers found when they combined carbon tetrachloride with benzene that they blanked this shift in the ratio by the carbon tetrachloride interfering with conjugation. After this fact was brought to my attention, my associates and I tried to see if we could make any use of that method of determination of exposure in our carbon tetrachloride work, but I came to the conclusion that it was much less valuable there, partly because normal inorganic sulfates run too high. We did make a special trip to a nearby plant and got about a dozen samples and examined those according to this technic, and we did find up to 100 per cent in some of them, but the ratios found did not agree with known exposures. In our animal experimental work we ran these tests, and in groups exposed to 200 parts per million of carbon tetrachloride found a definite difference between the normal and the exposed animal. The normal small animal, we found, had not as high a proportion of inorganic sulfates as is normal to man, so we could show a difference there which, when the groups were considered, had some significance. When the individual animals were considered, however, the difference was not great enough to say that this animal was exposed to carbon tetrachloride and that one was not.

DR. PAUL A. DAVIS, Akron, Ohio: I should like to ask the authors whether they have been able to hook up the symptom complex with the concentration of sulfates in any way at all, so that it would be possible to determine the point of toxicity. I want to know whether through their determinations of inorganic sulfates they are able to arrive at anything definite where one might expect these symptoms to develop.

DR. H. H. SCHRENK, Pittsburgh: We have not attempted to establish a concentration of inorganic sulfates in the urine which may be considered the threshold at which symptoms will eventually appear. The purpose of the test is to prevent benzene poisoning. If the results of urine analyses indicate a definite absorption of benzene, consideration should be given to the improvement of the exposure conditions.

DR. R. R. SAYERS, Washington, D. C.: It is hoped that a number of those who deal with benzene and industrial solvents will try the method. It would seem that it might be useful as a tool and for directing attention to where the hazard may occur, where the hazard exists, and thus one can prevent damage before it occurs. I believe from the data shown that even though the inorganic sulfates fall to almost zero, or even to zero, it doesn't necessarily mean that there has been any damage produced, provided the condition is corrected.

PHYSIOLOGIC RELATIONSHIPS BETWEEN INTRATHORACIC, INTRASPINAL AND ARTERIAL PRESSURES

W. F. HAMILTON, PH.D.
R. A. WOODBURY, M.D.
AND
H. T. HARPER JR., M.D.
AUGUSTA, GA.

In 1934 one of us with Brewer and Brotman [1] described an optical manometer which offered certain advantages over those in use at that time. The customary [2] rubber membrane carrying a flat mirror was discarded for a thin metal disk and a 0.5 diopter planoconvex lens silvered on the plane side. The new mirror design made it possible to lengthen the optical lever and to get photographic tracings of unusual clarity, and this with the simplest of optical arrangements. The disk (coin silver 0.0015 inch thick) increased the volume elasticity coefficient of the system to such a degree that it was possible to increase its effective mass 500 fold or more.

In accordance with the mathematical principles laid down by Otto Frank [3] we were free from the limitations imposed by a small effective mass and could construct a manometer that was much more convenient, flexible and adaptable than its predecessors.

Figure 1 is a diagram of it in its present form. Attention might be called to the convenience of using a long lead tube (up to 4 feet) armed with an ordinary hypodermic needle as a cannula and of thrusting this needle into an arterial or other cavity to record accurately the pressure pulsations within it. This is done with no surgical procedures.

By the simultaneous use of two or more manometers we have recorded the quantitative comparison of the pressures in the several parts of the cardiovascular system and the relationship between pressures in the cerebrospinal or thoracic cavities and those in the arterial or venous system.

One practical question of wide interest is How accurate is the ordinary auscultatory method of blood pressure measurement? It must be emphasized that its criteria have been established by inference and that direct checks have not been obtained until recently. Such checks have been made by Wolf and von Bondsdorff [4] and are now being continued in the Georgia school. Our results indicate that the indirect method agrees reasonably well with the direct method. The indirect method seems to be 3 or 4 mm. low in evaluating the brachial systolic and about 9 mm. high for diastolic (using the fading of the fourth phase). This summarizes the results of some thirty comparisons on random clinic patients. There is evidence already that in different clinical conditions the comparisons will check up in a different manner, but we are not yet in a position to go into greater detail.

We now wish to bring up the question of the relationship of pressures in one artery to those in another artery. If the pressure pulse inscribes its contour by means of a quantitative manometer, we have the maximal (systolic) pressure recorded as the heart empties blood into the arterial tree and a minimal (diastolic) pressure recorded just before the next heart beat. Now, if we take simultaneous recordings of the pressure within several arteries and replot them to the same pressure scale, it will be seen that, though there are no very significant differences in diastolic pressure, the systolic pressures progressively increase as we go from the axillary, near the heart, to the femoral and then on down to the foot (dorsalis pedis) (fig. 2). The femoral exceeds the axillary by 20 mm. and the dorsalis pedis exceeds the axillary pressure by 55 mm. Differences similar to these seem to be usual. In all our patients diastolic pressure is nearly equal in all the arteries, but what systolic pressure is depends on the artery.

The physical factors behind this increase in systolic pressure as the pulse wave approaches the periphery are not fully analyzed. They seem to operate in the lower limbs and abdominal aorta to a greater extent than in the arteries of the arm. It may be possible as a result of careful study to separate the factors that have to do with the volume elasticity characteristic of the arterial tree [5] with the inertia and momentum of the surging blood column [6] and with the velocity potentials of Bernouili. Rapid pressure pulsations are of importance because, when a patient coughs and the pressure is maintained above systolic for a fair part of a second, the difference in pressure between the two arteries disappears. It reappears as the pulsations begin again.

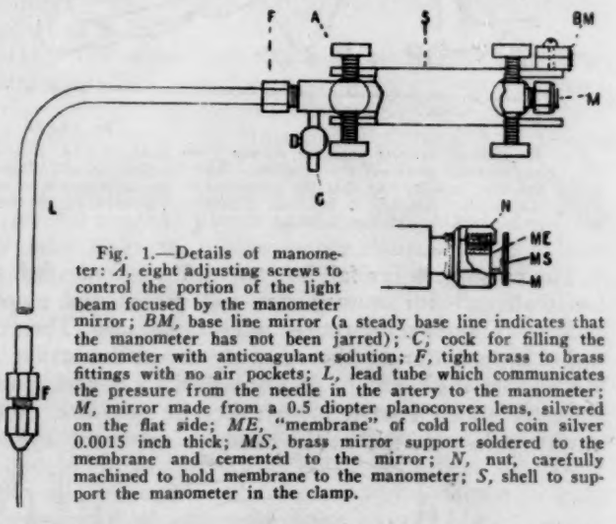

Fig. 1.—Details of manometer: *A*, eight adjusting screws to control the portion of the light beam focused by the manometer mirror; *BM*, base line mirror (a steady base line indicates that the manometer has not been jarred); *C*, cock for filling the manometer with anticoagulant solution; *F*, tight brass to brass fittings with no air pockets; *L*, lead tube which communicates the pressure from the needle in the artery to the manometer; *M*, mirror made from a 0.5 diopter planoconvex lens, silvered on the flat side; *ME*, "membrane" of cold rolled coin silver 0.0015 inch thick; *MS*, brass mirror support soldered to the membrane and cemented to the mirror; *N*, nut, carefully machined to hold membrane to the manometer; *S*, shell to support the manometer in the clamp.

The effect of coughing brings up the next topic; namely, the relation of intrathoracic pressure to arterial pressure and, later, to the pressure in the cerebrospinal fluid. For the intrathoracic pressure studies, the subjects were tuberculous patients with artificial pneumothorax. Straining and coughing seem to give the same blood pressure changes in these patients as in the normal, though in the normal simultaneous records of intrathoracic pressure were not made.

The pneumothorax and brachial artery were entered with 22 gage needles attached to similar manometers. The upper tracing in figure 3 is of the brachial pressure and next below is a tracing of the intrathoracic pressure. When the intrathoracic pressure went up, the

From the Department of Physiology and Pharmacology and the Department of Medicine, University of Georgia School of Medicine.

Read before the Section on Practice of Medicine at the Eighty-Seventh Annual Session of the American Medical Association, Kansas City, Mo., May 15, 1936.

1. Hamilton, W. F.; Brewer, George, and Brotman, Irving: Am. J. Physiol. **107**: 427 (Feb.) 1934.
2. Frank, Otto: Ztschr. f. Biol. **44**: 445, 1903.
3. Frank.[2] Wiggers, C. J.: Pressure Pulses in the Cardiovascular System, New York, Longmans, Green & Co., 1928.
4. Wolf, H. J., and von Bondsdorff, B.: Ztschr. f. d. ges. exper. Med. **79**: 569, 1931.
5. Frank, Otto: Ztschr. f. Biol. **46**: 441, 1905.
6. Bazett, H. C.: Am. J. Physiol. **70**: 550 (Nov.) 1924.

subject strained as in a bowel movement, increasing the intrathoracic pressure to a value of 50 mm. of mercury. The effort was maintained ten seconds and then suddenly released.

At first glance it seems that the blood pressure is passively supported by the intrathoracic pressure. The two pressures seem to go up together and come down together. We notice, however, that there are distinct changes in the pulse contour and in the heart rate.

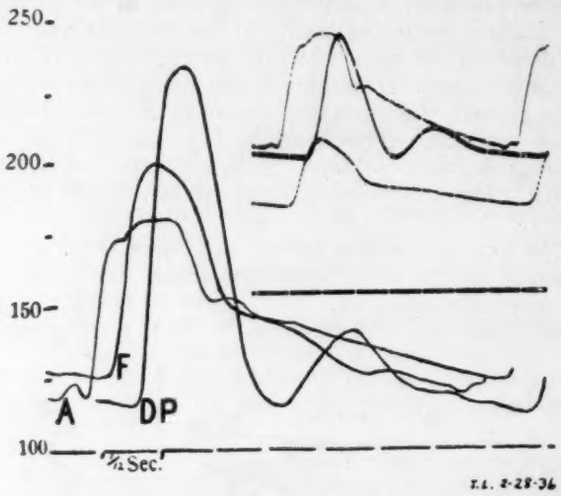

Fig. 2.—Human arterial pressure curves from axillary (*A*), femoral (*F*), and dorsalis pedis (*DP*) arteries. The original record (upper right) has been replotted so that the pressures in the arteries are shown on the same scale. Axillary = 165 mm. of mercury; femoral = 200 mm., and dorsalis pedis = 235 mm. systolic.

The pulse contours fall into two different types, which we shall call for convenience full pulses and empty pulses. There are of course intergradations. The full pulse is seen during the recovery from the strain at the end of the tracing. It is marked by a wide pulse pressure and a relatively high dicrotic pressure. The empty pulse, on the other hand, is produced by the

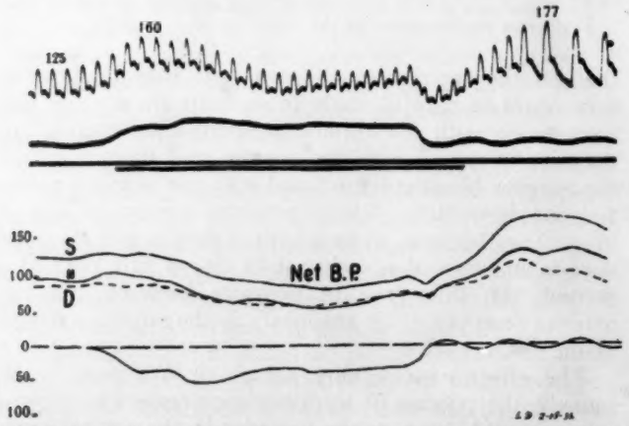

Fig. 3.—Straining. From above downward are shown brachial arterial pressure, intrathoracic pressure, and base line with signal. The net blood pressure is the arterial pressure minus the intrathoracic pressure. The three lines indicate systolic (*S*), diastolic (*D*) and dicrotic (*N*) pressures. The intrathoracic pressure curve has been inverted and plotted to the blood pressure scale (shown in millimeters of mercury at the left). The lower base line is divided into seconds.

discharge of an inadequately filled heart. It resembles that seen in experimental shock in dogs. The pulse pressure is narrow and the dicrotic pressure is often as low as the diastolic.

If one is to understand the causes of the changes in pulse contour and rate, it is convenient to subtract the intrathoracic from the arterial pressure and replot the effective pressure of the blood within the thorax. This gives the cardiovascular component of the blood pressure as distinguished from the intrathoracic. It is an index as to how the heart itself is working and as to the available pressure to feed the coronaries. We shall refer to this as the net blood pressure. In this chart the lowest curve is the intrathoracic pressure plotted to the blood pressure scale and inverted. The net blood pressures (systolic [*S*], diastolic [*D*] and dicrotic notch [*N*]) are plotted to the same scale, seen on the left.

We shall divide the response to the strain into four phases:

1. The blood pressure rises and the pulse becomes slightly fuller. This rise produces no change in heart rate, though it acts of course on the carotid sinus. The net blood pressure does not rise and soon begins to fall.

2. In the second phase the pulmonary reservoir becomes depleted. Cardiac filling is inadequate and the pulsations become of the empty type. They are mere ripples on the arterial tree and leave the artery as empty at the beginning of diastole as at the end. As this phase continues, some other factor enters (peripheral vasoconstriction perhaps) and the mean (net) blood pressure begins to rise again.

3. In the third phase the strain is let off and the general blood pressure falls precipitously to the level

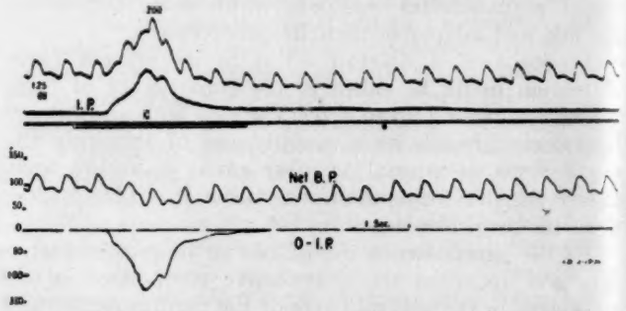

Fig. 4.—Effect of coughing. Curves arranged as in figure 3. Note that the intrathoracic arteries (coronary and the like) are protected from the elevated arterial pressure produced by the cough.

of the net (intrathoracic) blood pressure. The intrathoracic pressure has ceased to support the blood pressure.

4. Immediately the heart becomes better filled. The pulse pressure widens, systolic and diastolic pressures increase, and the dicrotic notch is higher on the diastolic contour. These changes reach their maximum in four seconds. Blood that has been dammed back in the extrathoracic venous reservoirs makes its way clear through the lesser circulation and produces a maximum effect on the arterial blood pressure in this short time.

The mean blood pressure does not rise in this fourth phase any higher and sometimes not as high as in the first phase, but the heart slows markedly. The depressor receptors of the carotid sinus [7] are stimulated alone in the first phase but in the fourth the receptors in the aorta are also stimulated because the net (aortic) blood pressure rises while in the first phase the rise is confined to the extrathoracic arteries.

When a patient coughs there is a bizarre increase in the blood pressure curve. Figure 4 is a simple example. The cardiac pulsations are overshadowed by other waves, which often last throughout diastole and may raise the arterial pressure to twice the systolic value. These have been recorded from normal human subjects,

7. Heymans, Corneille: Le sinus carotidien, Paris, Presses Universitaires de France, 1929.

and in patients with pneumothorax it is possible to record the simultaneous changes in intrathoracic pressure.

From simultaneous arterial and intrathoracic pressure curves the net blood pressure has been plotted in the same manner as before. In figure 4 the intrathoracic pressure changes are not very sudden and the cardiac pulsations in the net blood pressure are not greatly altered.

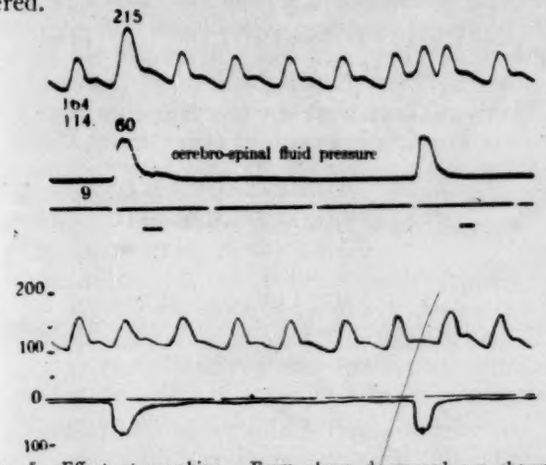

Fig. 5.—Effect ot coughing. From above downward are shown the brachial arterial pressure, cerebrospinal fluid pressure, base line, the net cerebrospinal arterial pressure, base line showing seconds, and the inverted cerebrospinal fluid pressure curve plotted to the blood pressure scale shown on the left. Note arterial pulsations in the cerebrospinal fluid pressure curve during recovery from a strain.

When the cough is more sudden, the net blood pressure may recede to zero; i. e., there is momentarily no effective coronary pressure. In a severe paroxysm of coughing the systemic blood pressure shows very large and erratic increases, but the net blood pressure still retains the marks of the cardiac rhythm in spite of increases and decreases of thoracic origin. The coughing leaves the heart inadequately filled and the pulses relatively empty.

These very large increases in arterial pressure on coughing and straining put a degree of stress on the arterial tree and give rise no doubt to interstitial hemorrhages. Because of their serious consequences, such hemorrhages have received particular attention when they occur within the craniospinal canal.

Evidence to be presented in detail elsewhere shows conclusively that quick changes in intrathoracic pressure are transmitted directly and immediately to the craniospinal canal. These pressure changes are not propagated to the cerebrospinal fluid by the internal jugular vein, because they are slower and less extensive in that vessel than in the canal itself. They are not propagated over the arterial tree. An ordinary systolic rise in arterial pressure causes a rise of intraspinal pressure of only 1 or 2 mm. of mercury. A similar rise in arterial pressure caused by a cough is accompanied by a rise in intraspinal pressure as great as or even a bit greater than the arterial rise itself (fig. 6).

This evidence leads us to regard the craniospinal cavity as a sort of functional extension of the thoracic cavity and to think of the cerebrospinal arteries as protected from the sudden stress that results from straining and coughing in the same fashion that the intrathoracic arteries are protected.

Thus in figure 5 the rises in systemic blood pressure that occur as a result of coughing do not appear in the net intraspinal pressure. They are canceled by similar rises in cerebrospinal fluid pressure. In figure 6 the same is seen to be true during a strain. The net intracranial blood pressure fails to rise as does the systemic blood pressure, but just as in the thorax it does rise after the strain is over. Moreover, the intracranial pressure pulsations are much more extensive after a strain than before or during the effort. It is at this time that the strain puts its greatest stress on the cerebral arteries.

The net intraspinal blood pressure, which is analogous to the net intrathoracic blood pressure, is of course the force that tends to burst the arteries and to produce apoplexy. One cannot fail to be struck by the admirable way in which the vital arteries within the craniospinal canal, within the thorax, and to a great extent within the abdomen are protected against these sudden and enormous physiologic increases in pressure.

Admitting the existence of these pressure relationships and their usefulness, what is there to say about the mechanism that results in the prompt and opportune rise in intracranial pressure? As we have seen, the pressure cannot be propagated from the thoracic to the craniospinal canal by the arteries or the internal jugular veins. How then do these sudden and large pressure changes occur in such a rigid bony box as the craniospinal canal?

The following hypothesis is at present the most attractive: We would suggest that the pressures which arise during coughing and straining in the thoracic and abdominal cavity are transmitted through soft tissues between these cavities and the spinal column to the spinal foramina. Because of the rigidity [8] of the cerebrospinal canal and because of the temporarily increased vascular pressure, no very large tissue or fluid volume would need to be squeezed into the spinal canal in order to raise the pressure even to the extent it does during the cough. The material entering the spinal canal under this stress may be (1) cerebrospinal fluid from under the evaginations of the dura around the spinal nerves, (2) the spinal nerves themselves and loose areolar tissue surrounding them, and (3) venous blood in the paravertebral plexuses, and in the larger veins at the back of the thorax and abdomen in close communication with these veins.

The pressure increases that are, according to our notion, produced in the spinal canal must naturally be propagated up through the foramen magnum and into

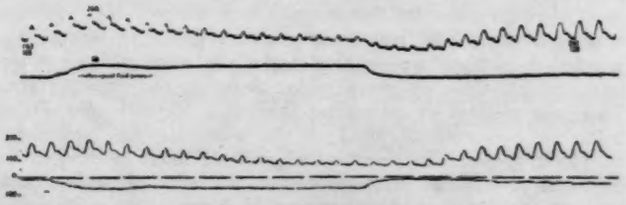

Fig. 6.—Straining curves arranged as in figure 5. Note that the cerebrospinal arteries are protected from the elevated arterial pressure produced by the coughs.

the cranial cavity. Even though the volume movement up through the base of the skull is small, the pressure thrust is considerable. A similar and opposite thrust occurs as the intraspinal pressure goes down. The fact that these stresses are localized at the base of the brain may have some bearing on the frequency of hemorrhage in this region.

SUMMARY

1. The manometer here described can optically record quick pressure changes in the human body with a high degree of accuracy.

8. Weed, L. H.; Flexner, L. P., and Clark, Janet H.: Am. J. Physiol. **100**: 246 (April) 1932.

2. Experiments show that the true systolic and diastolic blood pressures are not very different from those recorded by the auscultatory method.

3. Simultaneous recordings of arterial pressure in the axillary, femoral and dorsalis pedis arteries show that the latter two exceed the former by such figures as 20 and 55 mm. of mercury respectively, systolic. Diastolic pressures are nearly equal.

4. Simultaneous records of arterial and intrathoracic pressure show that the intrathoracic and probably the intra-abdominal arteries are protected from the large pressure fluctuations which coughing and straining produce in the systemic blood pressure.

5. Similar changes occur in the spinal pressure during straining and coughing which protect the arterial tree within the craniospinal canal from these unusual stresses. Thus a simultaneous sudden rise of arterial and spinal pressure of 100 mm. of mercury resulting from severe coughing leaves the net intraspinal arterial pressure unaffected.

ABSTRACT OF DISCUSSION

DR. RALPH H. MAJOR, Kansas City, Mo.: My observations, using the apparatus supplied me by Drs. Hamilton and Woodbury, have been limited to experimental animals. As clinicians we can derive satisfaction from the observation that, checked by this accurate method, our ordinary methods of taking the blood pressure of patients are quite satisfactory. This method, however, in the study of problems connected with hypertension or with disturbances of circulation, does many things that the ordinary blood pressure equipment does not. One of the most interesting features of this apparatus is the fact that it enables one to get away from the intertia of mercury. I have been astounded to see the terrific elevations of blood pressure that follow the administration of pressor substances. These elevations of blood pressure cannot be taken with a mercury manometer, since the mercury has too much intertia to follow these quick changes in pressure. For instance, I have seen systolic pressures as high as 400 mm. and diastolic pressures as high as 300. It is possible to demonstrate these very rapid changes only with such an apparatus. Since seeing some of these tracings in animals and a few that Dr. Woodbury has shown me on patients, I feel a little more respect for such substances as epinephrine. The authors didn't have time to bring that out in their paper, but I am sure we would be interested to have him refer to that in his closing discussion. Another interesting feature of his paper has been the demonstration of the effect of coughing on the coronary circulation. I wonder just what happens to the coronary circulation of a patient who has pneumonia and coughs continually. It makes one wonder if perhaps we shouldn't take the heart a little more into account than we seem to be doing at the present time. This new method of estimating the blood pressure opens new fields for exploration. Much of the work that has been done on blood pressure in anesthetized animals must be revised in the light of methods that estimate the pressure of patients and animals without the administration of drugs.

DR. R. A. WOODBURY, Augusta, Ga.: We have modified our cannulas so that we have a special type which enabled us to follow blood pressure changes in small animals, such as rats and mice. This will allow experimental workers to follow blood pressure changes in these animals, obtaining systolic and diastolic pressures, for a long period without sacrificing the animal. This technic will be described elsewhere. We hope to continue this work in the field of drug studies both in animals and in man. Preliminary work with epinephrine on human beings has shown some very striking blood pressure changes. The first patient receiving epinephrine had asthma. He was given a fairly large injection, 0.45 cc. of 1:1,000, not any larger than is given every day in outpatient clinics or in the emergency room. The pressure of this individual became elevated to such a height that we were not able to get the record. I know it went over 380, because we could have followed any changes to 380 mm. of mercury. We have studied the effect of smaller doses since that time and observed very definite periods of arrhythmia as a result of epinephrine. We hope to continue our studies on other cardiovascular drugs in animals and human beings. Another field which we expect to study is the strains that occur during parturition. We have noticed that the longer the strain the bigger the rise following the release of the strain. We expect to find some interesting changes following parturition pain and the strain that accompanies it.

UNTREATED SYPHILIS IN THE MALE NEGRO

A COMPARATIVE STUDY OF TREATED AND UNTREATED CASES

R. A. VONDERLEHR, M.D.
TALIAFERRO CLARK, M.D.
O. C. WENGER, M.D.
AND
J. R. HELLER JR., M.D.
Assistant Surgeon General, Medical Director (Retired), Surgeon, and Assistant Surgeon, Respectively, United States Public Health Service
WASHINGTON, D. C.

A determination of the effectiveness of treatment in preventing the transmission of syphilis is one of the basic problems in the control of this disease. Second in importance to it is the effect which treatment has in preventing late and crippling manifestations. The administration of adequate treatment in early syphilis is recognized as the most important factor in the prevention both of communicable relapse and of the early complications so detrimental to the health of the individual patient. As the result of surveys of a few years ago in southern rural areas it was learned that a considerable portion of the infected Negro population remained untreated during the entire course of syphilis. Such individuals seemed to offer an unusual opportunity to study the untreated syphilitic patient from the beginning of the disease to the death of the infected person. An opportunity was also offered to compare this process, uninfluenced by modern treatment, with the results attained when treatment has been applied.

The material included in this study consists of 399 syphilitic Negro males who had never received treatment, 201 presumably nonsyphilitic Negro males, and approximately 275 male Negroes who had been given treatment during the first two years of the syphilitic process. All these individuals were more than 25 years of age. The percentage of persons in each age group is comparable. The method of case finding and study has as far as possible been comparable and nonselective. The patients with untreated syphilis and presumably nonsyphilitic individuals were chosen primarily by the use of the Kolmer complement fixation and the Kahn standard flocculation tests for syphilis and subsequently by the presence or absence in the history of the early manifestations of syphilis. A total of 1,782 male Negroes aged 25 years or more were serologically examined in a rural county. Of these, 472 gave at least two positive serologic tests for syphilis. From this group the 399 patients with untreated syphilis were taken for this study. Only individuals giving a history of infec-

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The authors are indebted for cooperation and assistance in conducting this study to the personnel of the John A. Andrew Memorial Hospital, Tuskegee Institute, Ala., the U. S. Veterans Administration Facility, Tuskegee, Ala., the Macon County Health Department, Tuskegee, Ala., and the State Department of Health, Montgomery, Ala.

tion who submitted voluntarily to examination were included among the 399 patients. Of the total 1,782 Negro males, 1,258 were found to be serologically negative for syphilis. Persons in age groups comparable to the untreated syphilis cases were taken from these 1,258 serologically negative individuals, provided a subsequent serologic study gave no evidence of syphilis and a history of infection was absent.

The examinations included a careful history, a detailed physical examination, routine teleroentgenologic study of the heart and great vessels in the anteroposterior position, roentgenologic study of the osseous system if indicated, and a spinal fluid examination in 271 of the 399 patients with untreated syphilis. The routine examinations were performed by physicians trained in clinical syphilology. The assistance of specialists was utilized when manifestations were such as to require unusual examinations.

The case records of patients with syphilis who received varying amounts of treatment during the first two years of their disease were available for this study. These case records were from the syphilis clinics of five universities which have undertaken retrospective clinical studies under the guidance of the Public Health Service. Roentgenologic study of the chest was not routine in this group, although such studies were made when indicated. The spinal fluid was examined in a larger percentage of the untreated syphilitic patients than in the treated syphilitic group.

The present study presents the physical and mental condition of a cross-section of the untreated seropositive syphilitic male Negro population. The problem offered by those individuals who had been infected with syphilis but who had spontaneously become serologically negative will not be discussed here. No data are available that indicate the frequency with which negative serologic tests spontaneously develop in the Negro with latent or late syphilis. Reports from the current medical literature indicate that approximately 75 per cent of patients with active late syphilis have positive serologic tests, regardless of whether or not they received previous treatment. In the recent studies [1] of the Committee on Evaluation of Serodiagnostic Tests for Syphilis, 3,961 specimens from 307 patients with latent and late syphilis were examined by thirteen participating serologists. Most of these patients had received varying amounts of treatment; a few were untreated. Among the 3,961 specimens examined, 2,976, or 75.1 per cent, were positive. The present study, therefore, represents the condition of at least three fourths of the untreated syphilitic Negro population.

MORBIDITY IN UNTREATED SYPHILIS

A comparison of the physical and mental condition of the untreated syphilitic patients with the apparently nonsyphilitic Negroes in the general population permits an estimate of the effect of syphilis in the production of morbid processes involving the various systems of the body. Only 16 per cent of the 399 untreated syphilis patients gave no evidence of morbidity, as compared to 61 per cent of the 201 presumably nonsyphilitic Negroes. The effect of syphilis in producing disability in the early years of adult life is to be noted by comparing the cases with no demonstrable morbidity under 40 years of age. This comparison shows that only one fourth of the Negroes with untreated syphilis had no manifestations of disease, whereas three fourths of the uninfected population were free.

With an increase in age there is, as one would expect, an increase in the frequency of manifestations of cardiovascular involvement due not only to syphilis but also to arteriosclerosis and hypertension. Modern diagnostic methods have not as yet progressed to such an extent that most signs and symptoms of cardiovascular disease are recognized as pathognomonic on an etiologic basis. This is especially true for the earlier manifestations of disease involving this system of the body. The manifestations of aortitis here recognized were those which have been generally accepted as diagnostic for several decades, as well as those which have more recently been emphasized by Carter and Baker [2] and Moore, Danglade and Reisinger.[3] Roentgenologic manifestations of increased aortic width and the presence of two of the remaining six signs of these investigators were considered to be diagnostic evidence of aortitis. The roentgenologic readings were based on the interpretation of observations as outlined by Vaquez and Bordet.[4]

TABLE 1.—*Comparison of Results of Physical Examination of Untreated Syphilitic and Presumably Nonsyphilitic Male Negroes in Similar Age Groups*

	Age of Patients at Time of Examination					
	Syphilitic			Nonsyphilitic		
Type of Abnormality Found	25-39	40 and Over	Total	25-39	40 and Over	Total
Diseases of circulatory system:						
Definite cardiovascular disease	25.3	63.1	46.6	5.7	37.7	23.9
x-ray evidence alone or incomplete clinical evidence of uncomplicated aortitis	30.5	18.2	23.6	7.0	3.5	5.0
Diseases of:						
Central nervous system	23.0	28.4	26.1	1.1	3.5	2.5
Skin and adnexa	12.6	22.7	18.3	2.3	7.9	5.5
Bones, joints and bursae	12.1	12.9	12.5	4.6	4.4	4.5
Respiratory system	1.1	2.2	1.8	2.3	6.1	4.5
Genito-urinary system	4.0	2.7	3.3	2.3	...	1.0
Eye and adnexa	0.6	3.1	2.0	...	1.8	1.0
Ear, nose and throat	4.6	0.9	2.5	...	0.9	0.5
Digestive tract	0.6	0.4	0.5	...	0.9	0.5
Cases with no morbidity	25.3	8.4	15.8	77.0	49.1	61.2
Total cases: Number	174	225	399	87	114	201
Per cent	100.0	100.0	100.0	100.0	100.0	100.0

Study of the untreated syphilitic and presumably nonsyphilitic individuals under the age of 40 years indicates that syphilis in this period tends greatly to increase the frequency of manifestations of cardiovascular disease. It is to be noted that of 174 syphilitic individuals under 40 years, 25.3 per cent had definite manifestations of cardiovascular disease, as compared with 5.7 per cent of eighty-seven individuals in the same age group who were nonsyphilitic. A difference may still be noted in individuals over the age of 40, although this difference is not so pronounced. Of 225 untreated syphilitic patients over 40 years of age, 63.1 per cent had definite manifestations of cardiovascular disease as compared with 37.7 per cent among 114 nonsyphilitic individuals.

Perhaps the most interesting group of patients in the study, because of their potential amenability to treatment, are those who have presumptive evidence of uncomplicated aortitis. Because of the strictness of present-day criteria, these cases could not be definitely

1. Cumming, H. S., and others: The Evaluation of Serodiagnostic Tests for Syphilis in the United States: Report of Results, Ven. Dis. Inf. **16**: 189 (June) 1935; J. A. M. A. **104**: 2083 (June 8) 1935.

2. Carter, E. P., and Baker, B. M., Jr.: Certain Aspects of Syphilitic Cardiac Disease, Bull. Johns Hopkins Hosp. **48**: 315 (May) 1931.

3. Moore, J. E.; Danglade, J. H., and Reisinger, J. C.: Treatment of Cardiovascular Syphilis, Arch. Int. Med. **49**: 879-924 (June) 1932.

4. Vaquez, H., and Bordet, E.: The Heart and the Aorta, New Haven, Conn., Yale University Press, 1920.

diagnosed. Of the untreated syphilitic patients, 23.6 per cent had presumptive evidence of uncomplicated aortitis, while only 5 per cent of the nonsyphilitic patients presented such evidence. In the early years of adult life, especially among untreated syphilitic patients, it is more common to have either roentgenologic or clinical evidence of increased aortic width alone than it is to have a combination of the two. In later years, however, the corroborative evidence more frequently permits a definite diagnosis of uncomplicated aortitis. This fact is so striking that presumptive evidence of aortitis should be regarded as of great importance and patients giving such evidence should be subjected to long periods of observation and treatment. The exact interpretation of these manifestations awaits more definite proof, which it is hoped may be accumulated by following the untreated syphilitic individuals over a period of years, a number being ultimately brought to autopsy. Such an attempt is now being made with the assistance of a philanthropic organization. The purpose is to confirm

TABLE 2.—*Comparison of Results of Examination of Untreated Syphilitic Male Negroes 25 or More Years of Age, with Those in a Similar Group of Treated Syphilitic Patients Showing Duration of Infection*

Treatment	Type of Manifestation	Duration of Infection in Years		
		Three	Six	Nine
None	Cardiovascular	7.7	12.0	41.9
	Neurosyphilis	30.8	36.0	29.0
	Asymptomatic	15.4	20.0	12.9
	Symptomatic	15.4	16.0	16.1
	Total cases: Number	26	25	31
	Per cent	100.0	100.0	100.0
Inadequately treated during first two years of infection	Cardiovascular	1.2	6.1	6.9
	Neurosyphilis	9.3	18.4	13.8
	Asymptomatic	2.3	6.1	3.5
	Symptomatic	7.0	12.3	10.3
	Total cases: Number	86	49	29
	Per cent	100.0	100.0	100.0

the presumptive manifestations of cardiovascular disease if possible and to corroborate the accuracy of clinical observations in general.

The incidence and character of syphilis of the central nervous system in the Negro has been a controversial issue for many years. Generally speaking, one group of observers believes that dementia paralytica and tabes dorsalis are not particularly common in the Negro race. A second group is of the opinion that parenchymatous neurosyphilis occurs almost as frequently as in the white race. In this study 26.1 per cent of 399 untreated syphilitic Negro males had either clinical or serologic evidence of central nervous system involvement. Only 2.5 per cent of the 201 nonsyphilitic Negroes, on the other hand, had any disease of the central nervous system.

Analyzing our data further, we find that of the 399 untreated syphilitic patients 7.8 per cent had definite clinical evidence of central nervous system syphilis, while in an additional 18.3 per cent the diagnosis of central nervous system involvement was based on serologic evidence only. The untreated syphilitic patients included 3 per cent of a relatively benign parenchymatous type and 4.8 per cent with all other forms of central nervous system involvement. In the latter group the most serious type was the vascular form.

With regard to the benign parenchymatous type, such patients did not appear to run the usual classic course of dementia paralytica or tabes dorsalis. The manifestations that were common included positive reactions in the spinal fluid, and changes in the pupillary reactions and tendon reflexes. No typical cases of dementia paralytica or tabes dorsalis were noted but one case of simple dementia was found. In order to be certain that there was no selection of patients through loss to institutions for the insane, it was learned that not a single male Negro over 25 years of age was confined with syphilis of the central nervous system in the Searcy Hospital at Mount Vernon, Ala., where the Negro insane in this state are hospitalized.

In the group of 399 untreated patients with syphilis, forty-six (11.5 per cent) gave evidence of late involvement of the bones, joints and skin. Of these, thirty-six patients (9 per cent) showed periostitis, osteitis or Charcot's joints. Two patients, or less than 1 per cent, presented late syphilis of the skin, and eight (2 per cent) had both a late skin and a bone or joint involvement.

EFFECT OF TREATMENT

All syphilologists recognize the great importance of the provision of treatment during the first two years of the syphilitic process, and all are likewise of the opinion that treatment during this period should be adequate. An accurate evaluation of the modern treatment of syphilis is, however, made difficult by many factors. First of all, adequate treatment has not been freely available to most indigent citizens for a period longer than a decade. Furthermore, not until about twenty years ago was the administration of the arsphenamines started in this country on a large scale. In comparing the results obtained by modern treatment with those in untreated patients, it is important that both groups be observed for a definite period. An observation period of at least twenty or more years is necessary to give a true picture of the value of therapy. The incompleteness of records of patients treated in the past often does not permit such a comparison. Final evaluation of treatment must await the accumulation of well kept records of patients treated and observed over a sufficiently long period.

In connection with the administration of adequate treatment, the tendency of all patients, whether white or colored, is to become dilatory in returning to the attending physician during the observation period. If the individual remains symptom free and the physician has assured him that adequate treatment has been administered, repeated return for observation soon becomes irksome. The consequent lapse tends to distort the results obtained with adequate treatment, since patients who suffer no relapse fail to return, while those presenting intractable manifestations are prone to return for long continued treatment.

In the following discussion more than twenty doses of an arsphenamine with an accompanying heavy metal preparation are arbitrarily classified as minimum adequate treatment. Less than this amount has been called inadequate. Among sixty-eight individuals who were adequately treated during the first two years of their infection, not a single one returned with any of the manifestations of late syphilis. The fact that none of these patients returned up to the fifteenth year of observation with a late syphilitic manifestation indicates that effective treatment has definite preventive value against the crippling manifestations of late syphilis. The degree of protection is even more manifest if a comparison is made with the patients with untreated syphilis during comparable periods.

Table 2 permits a comparison, at intervals of three, six and nine years after the syphilitic infection began, between untreated patients and those receiving inadequate treatment. Among eighty-six inadequately treated male Negroes whose infection was of three years' duration, as compared with twenty-six untreated patients in the same chronological period, 1.2 per cent of the former had evidence of a cardiovascular involvement as compared to 7.7 per cent of the latter. Syphilis of the central nervous system was present in 9.3 per cent of the inadequately treated patients in this period, as compared with 30.8 per cent of the untreated individuals. The preponderance of the late manifestations of syphilis in the untreated patients as compared with the inadequately treated continues throughout the years of observation. Nine years after the onset of the syphilitic infection, the inadequately treated patients had 6.9 per cent cardiovascular involvement and 13.8 per cent central nervous system involvement, as contrasted with 41.9 per cent and 29.0 per cent respectively among the untreated syphilitic Negro males.

CONCLUSIONS

1. The clinical and laboratory observations in 399 adult male Negroes with untreated syphilis and 201 presumably nonsyphilitic adult male Negroes in comparable age groups permit a comparative determination of the extent of morbidity due to untreated late syphilis.
2. The results indicate that the cardiovascular system is the most commonly involved in the late syphilitic process and the aorta is the most commonly involved structure in so-called latent syphilis in the adult male Negro.
3. Morbidity in the male Negroes with untreated syphilis far exceeds that in a comparable presumably nonsyphilitic group.
4. Adequate antisyphilitic treatment prevented all forms of clinical relapse during the first fifteen years of the infection, whereas only one fourth of the Negroes with untreated syphilis were normal.
5. Cardiovascular and central nervous system involvements were from two to three times as common in the untreated syphilis group as in a comparable group receiving even inadequate treatment.

ABSTRACT OF DISCUSSION

DR. CHARLES C. DENNIE, Kansas City, Mo.: Dr. Vonderlehr and his co-authors have some ideas concerning the involvement of the central nervous system in Negroes. It is a great deal higher than we have been led to expect. Central nervous system syphilis in the colored races is somewhat lower than it is in the white. It is believed by many authorities that the presence of malaria in countries inhabited by the colored or the Indian race is responsible for the comparative absence of central nervous system involvement. The second school states that it is the comparative resistance of the central nervous system to syphilis in the colored races that is responsible for the smaller number of involvements. It is known from the work of Peterson that the Negro who migrates to the North develops more tabes dorsalis and dementia paralytica; likewise that in the northern countries with a large Negro population, such as in Kansas City, with 50,000 Negroes, that there is a comparatively small number with involvement of the central nervous system. In Kansas City at present and for many years there has been practically no malaria, so that malaria as an influence cannot be considered. From observation in other places it must be concluded that the color of the skin has some effect on the smaller number of central nervous system involvements. I have observed in Brazil, during a short stay, not only the incidence of syphilis but also the incidence of malaria. The hydro-electric plant built for the city of São Paulo, a city of some 1,200,000, one of the largest municipal hydro-electric plants in the world, was constructed in the midst of a malaria infested district. In an examination of 25,000 applicants for jobs on the construction only 8,000 were free from malaria. This figure may be taken as a fair indication that 75 per cent of the population are suffering from either chronic or acute malaria. It is stated by the Brazilian authorities that the incidence of syphilis in the city of Rio de Janeiro is about 35 per cent. The incidence of dementia paralytica and tabes dorsalis, however, is much lower than it is among the more northern countries. It must therefore be assumed that the comparative freedom of the colored races from central nervous system syphilis is due to two causes: first, a racial influence that modifies the action of the organism of syphilis on the central nervous system, a lessened threshold value for symptoms even where they do have the asymptomatic symptoms of the central nervous system, and, second, the presence of malaria in a comparatively large percentage of the population.

DR. HARRY M. ROBINSON, Baltimore: After all these years, since 1905, when progress in the knowledge of syphilis really started or was awakened, it is surprising to find how ignorant the average medical man is of the treatment of syphilis. Of course, in every large clinic these figures which Dr. Vonderlehr and his co-workers have shown are known; they vary somewhat in the various clinics; we see probably a few more patients with dementia paralytica, still more optic atrophies in the Negroes than others have reported, but nevertheless the important thing is that we have noted the fact that syphilis is not merely a chancre and consequent secondary skin lesions, but a ravaging disease which destroys the organs of the body. It is a pity that not more emphasis is laid on this fact, because in visiting smaller towns I am struck with the fact that much ignorance is displayed on syphilotherapy. Many students write us that the competition in their communities is too great for them to insist on our outlined course of treatment. The average physician in their community advises a course of seven to ten injections of arsphenamine or a bismuth compound as a complete treatment for syphilis.

DR. ARTHUR SCHOCH, Dallas, Texas: It is gratifying to get some accurate figures with regard to the incidence of syphilis. It seems that most of these studies must originate in governmental departments rather than private clinics. In Dallas we have recently done a study in an attempt to find out the incidence of syphilis in the outpatient clinic at Baylor Hospital. We purposely selected the year of 1934 to go through 3,300 records, because during that year our clientele at the clinic was recruited from a slightly higher social level than usual. The general incidence of syphilis in the outpatient department was 17 per cent. The incidence in white patients was 9 per cent, in colored patients it was 31 per cent. We then subdivided these patients, trying to ascertain the approximate incidence of syphilis coming from the various departments, such as medicine, surgery, obstetrics and gynecology. Taking the department of medicine as a base line, we found that the incidence of syphilis coming in through the medical department in white patients was 12 per cent. We then compared the incidence of syphilis coming from the various specialties. Obstetrics gave the lowest percentage, 2. Interestingly enough, such narrow specialties as ophthalmology and otolaryngology showed an incidence of 8 per cent, as compared to 12 from internal medicine, only 1 per cent less of the general incidence of syphilis of all white patients who came to the outpatient department for various reasons.

DR. JAMES K. HOWLES, New Orleans: Several years ago a neurologist presented at a meeting in Kansas City a case of dementia paralytica in a Negro. I was surprised to find at New Orleans a clinic that was treating an enormous group of patients. We treat an average of 1,300 to 1,800 syphilitic patients a week in the antisyphilitic clinics of Charity Hospital, which gives an idea of how many colored patients we see. We are trying to systematize the treatment and the investigation so that our records will mean something. But the point I wish to stress is that central nervous system syphilis isn't rare in the colored; in fact, it is almost as prevalent in our clinics as in the white, but of course our white cases are far in the minority as compared with the colored cases. We have investigated why there

are so many complaints of a cardiovascular nature in the colored people. In analyzing some 1,400 cases with an internist, I find that the symptoms they give relative to cardiovascular syphilis vary so much that they have to be greatly discounted in the cases of the colored females. In analyzing some 1,400 cases and examining them thoroughly, with the aid of electrocardiograms and roentgenograms of the chest, we found that most of the complaints in the colored female are groundless, whereas the complaints in the colored males are not stressed enough. I bring up these two points to show that there is a lot to be learned in the classification of syphilis in the colored, and I believe that with such studies as the author has presented, in the course of a few years we shall be able to get somewhere.

DR. R. A. VONDERLEHR, Washington, D. C.: I wish to assure Dr. Howles that we had considerable difficulty in taking the histories of syphilitic Negro males. The average Negro is a most congenial person and he has a tendency to agree with almost anything that one wishes him to agree with. We spent an hour or more getting each one of these histories. Dr. Dennie brought up the question of the influence of malaria on the incidence of central nervous system syphilis. We inquired from each of these Negroes whether he had ever had malaria or typhoid. I believe around 25 or 30 per cent of the Negroes reported that they had had one or the other of these diseases. We have available this analysis, which we expect to report ultimately in a more detailed paper on syphilis of the central nervous system in the Negro. The incidence of syphilis was not more frequent in the group which had never been infected with either malaria or typhoid; in other words, there was no difference in the two groups after breaking down our figures.

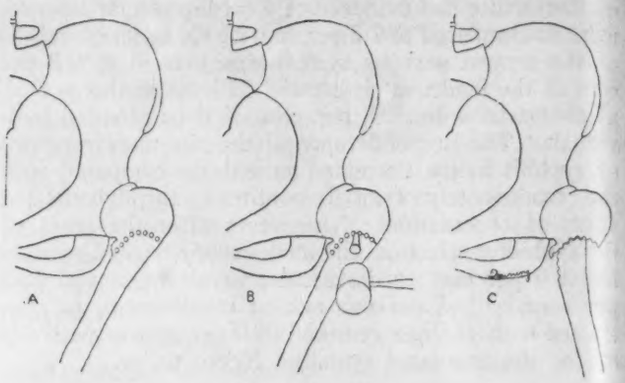
Clinical Notes, Suggestions and New Instruments

A SUBTROCHANTERIC OSTEOTOMY

F. HAROLD DOWNING, M.D., AND ROBERT H. MORRIS, M.D.
BOSTON

Subtrochanteric osteotomy of the femur for flexion adduction deformity of an ankylosed hip is a common and widely used corrective operative procedure. It has been our experience that most methods commonly in use do not allow accurate control of the distal fragment. It is not uncommon for this fragment to slip following osteotomy during correction of the deformity and override the proximal fragment. This has also been known to occur during closure of the wound and even several days after operation even though a hip spica was used for fixation. Usually the affected leg is already too short and the additional shortening is anything but desirous. It is likewise not unusual to find on removal of the spica that there has been a gradual loss of the correction of abduction. When the extremity is placed in the abducted position it causes considerable tension on the adductors, which have become shortened from contracture by adaptation to the adducted position. This constant tension has a tendency to rotate the pelvis within the spica and thus minimize the correction. It is our intention to report a method which, although both simple and easy, completely overcomes these difficulties.

Due credit must be given to Brackett for introducing the curved subtrochanteric osteotomy, which was designed to allow the distal fragment to rotate on the concave proximal end, thus allowing the distal fragment to be rotated without danger of slipping. However, in performing a curved osteotomy with an osteotome alone there is always danger of a breaking off of the important medial tip of the proximal fragment which is extremely necessary. It is this portion which prevents the distal fragment from dislocating medially. By outlining the desired curve first with a series of one-fourth inch drill holes one-fourth inch apart (*A* in illustration) and using an osteotome only for cutting the bone left between (*B*) it is possible to control accurately the exact place, curve and angle of the osteotomy. When the osteotomy has been completed, one finds that the opposing surfaces resemble those of opposing gears and it is very easy to rotate the distal fragment into any desired position. One is sure of accurate fixation, for the "cogs" fit into each other in the new position (*C*) and prevent any immediate or future danger of slipping, thus avoiding overriding or rotation of the pelvis with the resultant loss of correction. We have found it best to make the proximal fragment as short as safely possible and plan to have the curve extend from the region of the lesser trochanter upward and outward to just below the greater trochanter. The operation is then performed chiefly in very vascular cancellous bone and union is very rapid. A hip spica is used for fixation, the plaster extending from the toes of the operated leg to the middle of the thorax.



A, the desired curve is first outlined with a series of one-fourth inch drill holes one fourth inch apart. *B*, the intervening bone is cut with a half inch osteotome. *C*, the distal fragment is rotated on the concave proximal fragment till the desired correction is obtained.

REPORT OF CASE

A woman, aged 46, admitted to Brooks Hospital Oct. 7, 1935, with a diagnosis of an old healed tuberculosis of the left hip, left knee and spine, had 4½ inches shortening of the left leg. The left hip was ankylosed in 40 degrees flexion and 40 degrees adduction.

October 9, under general anesthesia, a 6 inch longitudinal incision was made on the anterior lateral aspect of the left thigh just below the region of the greater trochanter. The soft tissues were divided in the same plane and the region of the femur exposed extending from the lesser trochanter to just below the greater trochanter. A series of one-fourth inch drill holes one-fourth inch apart was then made in a curve from the lesser trochanter upward and outward to just below the greater trochanter, the drill being directed posteriorly and slightly upward. The intervening bone was cut with a half inch osteotome, the instrument being directed in the same plane. On completion of the osteotomy, the leg was rotated into 15 degrees abduction and full extension. The wound was then closed in layers and a single hip spica applied. The postoperative convalescence was uneventful. The spica was removed in ten weeks but the patient was allowed to remain in bed for another four weeks before being allowed up on crutches. By the end of six months, union was firm and full weight bearing was painless. The correction had not changed.

COMMENT

We have reported and described an operation for flexion adduction deformity of an ankylosed hip which we believe to be much better than those in common use for the following reasons:

1. It is simple and easy to perform.
2. The location, extent and angle of the bone fracture can be accurately controlled.
3. There is no danger of unforeseen fracture.
4. One has perfect control of both fragments during the entire operative procedure.
5. Fixation is easy, with no immediate or future danger of slipping.
6. The callus is abundant and union is rapid.
7. There is little or no operative shock, and the postoperative convalescence should be uneventful.

253 Newbury Street.

The use of drill holes for outlining the location for an osteotomy was first learned indirectly by one of the authors through Dr. J. K. Adams, but we have recently discovered that a procedure closely resembling the one described has been used at the Massachusetts General Hospital. No published account could be found.

Special Articles

THE CHOICE OF OINTMENT VEHICLES IN DERMATOLOGY

BERNARD FANTUS, M.D.
Professor of Therapeutics, University of Illinois College of Medicine
CHICAGO

This is one of a series of articles written by eminent clinicians for the purpose of extending information concerning the official medicines. The twenty-four articles in this series have been planned and developed through the cooperation of the U. S. Pharmacopeial Committee of Revision and THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION.—ED.

Unless it be in the domain of surgery, there is no other department of therapeutics in which physical influences determine to so great an extent the success or failure of therapy as in dermatology; and it certainly behooves the physician to take special interest in dermatology, for nowhere else in medicine do errors in treatment manifest themselves so promptly as they do in skin disease.

Chief among the physical influences that govern the effect of remedies is solubility. In dermatology it determines whether the application will stick or not and, as with the postage stamp, the first requisite of a skin remedy is that it must stick. If it does not, the surface cannot be properly covered with the application, and whatever remedy it is intended to carry cannot influence the affected area as it should. What is still worse, when a dense fatty ointment is applied to a surface from which it is lifted off by accumulating discharge, the latter serves as a culture medium for the ever present micro-organisms; and these, by the poisons they produce, may cause irritation, sometimes erroneously ascribed to "idiosyncrasy" of the patient.

The first division, therefore, of the ointment vehicles must be made on the basis of affinity into "lipotropic" and "hydrotropic" applications. The former, having fat affinity, include ointments and cerates, cling to the fatty surface of the skin, and are indicated as long as the surface is relatively intact and fatty. When the epithelial layer of the skin is lost, as in case of an ulcer or excoriation, or the surface is moist, as in "weeping eczema," a hydrotropic preparation—i. e., one with water affinity—to which the term "paste" [1] might be applied, is likely to be much superior to a lipotropic preparation.

Probably the next most important basis for division in case of the ointment vehicles rests on differences in melting point, and the dividing line must be the temperature of the skin of the covered parts of the body, say, 98 F. Fatty applications of a melting point above that of the surface of the skin are known as cerates, because the increase in melting point was formerly secured largely by the presence of wax (cera). Fatty applications with a melting point at or below the temperature of the skin are known as ointments.

CERATES

Of the three U. S. P. cerates, two are suitable as vehicles for dermatologic applications, the third one, the Cantharides Cerate, being the basis for blistering plasters employed in counterirritation.

From the Laboratory of Pharmacology and Therapeutics, University of Illinois College of Medicine.

1. While the use of the word "paste" in this sense is favored by leading pharmacists the National Formulary Committee has not yet had the courage to change the well established name for "Lassar's paste" (paste of zinc oxide) to a more distinctive "ointment" title.

Cerate (Ceratum), or Simple Cerate, a mixture of thirty parts of wax and seventy parts of benzoinated lard, forms when spread on gauze or linen a bland protective dressing for surfaces the natural protective layer of which, the epidermis, is deficient or defective and that are secreting but little fluid. It has the advantage over a preparation which melts at the temperature of the skin that it does not liquefy and run through a dressing as an ointment would but stays in the place where it is wanted and keeps the dressings from sticking to the raw surface. Medicating such preparations with other than volatile material is largely delusional, because "substances do not act unless they are in solution," and a fatty material that does not melt effectually seals nonvolatile ingredients against access of solvent.

That volatile ingredients become active in spite of such a handicap is illustrated by the Rosin Cerate (Ceratum Resinae), which is somewhat irritative owing to a trace of turpentine that cannot be separated from the Rosin, of which the cerate contains 35 per cent. Rosin, be it remembered, is the residue left after distilling off the volatile oil (Oil of Turpentine) from the concrete oleoresin Turpentine. Such an irritative dressing is superior to a bland protectant when stimulation to healing is desired. As the cell proliferation induced by such irritants is nonspecific, it will favor the growth of connective tissue quite as much—indeed relatively more—than that of epithelium and thus lead to the development of exuberant granulations. Hence, when there is a tendency to the formation of proud flesh, nonspecific irritants of this kind are contraindicated.

OINTMENTS

Because ointments liquefy at the body temperature and are of a fatty nature, they are the most important vehicles for carrying medication to the skin.

Ointment (unguentum), also known as Simple Ointment, is petrolatum with 5 per cent each of Wool Fat and of White Wax, which additions permit the incorporation of a certain small amount of fluid in the otherwise "hydrophobe" petrolatum. This is a salve vehicle employed in most of the official medicated ointments and it is advisable for physicians to use it in their prescriptions instead of Benzoinated Lard, which is objectionable on account of its tendency to rancidity.

PRESCRIPTION 1.—*Ointment Containing Ten per Cent of Pine Tar*

℞	Pine Tar	3.0 Gm.
	Ointment	30.0 Gm.

Mix and label: Apply locally.

If, for instance, a physician desires to prescribe an ointment containing 10 per cent of Pine Tar, he might write prescription 1.

The official Pine Tar Ointment contains 50 per cent of Pine Tar, which proportion may be too irritative for a certain case of subacute dermatitis, while in another case the 10 per cent Tar Ointment might be too weak and the 50 per cent Tar Ointment might be required.

Differences in consistency are perhaps the chief reason for choice among the various official ointments that might be considered salve vehicles. These range from the fluffy softness of Rose Water Ointment and the emollescence of the Zinc Oxide Ointment to the relative denseness and great covering qualities of the Paste of Zinc Oxide of the National Formulary. To

bring out clearly the differences in the use of these, a detour into fundamental principles may be desirable.

As a general proposition, ointments are contraindicated in acute inflammatory conditions of the skin, because of their "heating" quality. This is due largely to the fact that, by inhibiting the evaporation of sweat, they check the cooling influence this would exert and, in consequence, induce hyperemia of the skin.

CREAM OINTMENTS

An exception to this general proposition regarding ointments occurs with the cream ointments, in which the "heating" qualities of fat are antagonized by the water

PRESCRIPTION 2.—*Ointment for Pruritus*

℞	Menthol	0.03 Gm.
	Phenol	0.60 Gm.
	Rose Water Ointment	30.00 Gm.

Mix and label: Apply to itching skin.

incorporated in them by means of emulsification. The cooling sensation produced by the evaporation of the water, when such ointments are applied to the skin, has given them the name of "cold cream." These emulsions also have the advantage of making the application more suitable to relatively moist surfaces, as emulsified fat clings to them fairly well.

As the classic type of such cream ointments may be mentioned the official Rose Water Ointment (Unguentum Aquae Rosae), a preparation invented by Galen nearly 1,800 years ago. In its various modifications cold cream has become progressively more popular. Galen's method consisted of soaking rose buds in olive oil and, after straining, mixing it with melted wax, which—acting as an emulsifying agent—permitted the incorporating of water, a little at a time, until a white creamy ointment was secured. Today in the official formula the same principle is employed, but a better product is secured by modification of the ingredients. Diluted Rose Water is emulsified in Expressed Oil of Almond (56 per cent) by means of Spermaceti (12.5 per cent) and White Wax (12 per cent). Sodium Borate (5 per cent) is added, as it improves the keeping qualities and favors emulsification; and a tiny quantity (0.02 per cent) of oil of rose is added to strengthen the flavor.

Because of its cooling quality, rose water ointment is a good vehicle for ointments against itching. Thus, against pruritus with intact epidermis, prescription 2 may be prescribed.

PRESCRIPTION 3.—*Decongestive Application for Weeping Eczema*

℞	Solution of epinephrine hydrochloride	15.00 cc.
	Wool Fat	5.00 Gm.
	White Petrolatum	10.00 Gm.

Mix and label: Apply to the affected skin.

Greatly overshadowing its therapeutic use in importance is the employment of cold cream as a cosmetic, and, for its different uses, various modifications of its character are required, from "vanishing creams" to "emollient creams."

Vanishing cream is simply an emulsion of stearic acid in water containing soap. Very little of the stearic acid is required to produce the ointment-like consistency.

When "vanishing cream" is applied to the skin, it does not really vanish. After evaporation of the water there is left a thin, practically invisible, nongreasy layer, which forms a good basis for the application of powder. When used for this purpose it is often spoken of as "foundation cream."

"Cleansing cream," used as a detergent, is nothing more or less than an extremely superfatted soap, possessing maximal cleansing with minimal irritative action. When all that can be has been said in favor of "vanishing cream" and "cleansing cream," it must be pointed out that they cannot be used for the purpose of soothing, for which the official Rose Water Ointment is largely employed, as they do have an irritative quality, even though a very slight one.

The beauty culturist sharply contrasts these from "emollient creams," which are soothing and chiefly intended for night use. These serve largely as restoratives, to replace the natural lubricant of the skin, which is removed excessively by the so frequent washing of the skin demanded by modern feminine hygiene.

The emollient creams fittingly contain Wool Fat, which in its chemical composition resembles the sebum closely and hence might be considered the ideal restorative for the sacrificed fat of the skin. Wool Fat is, in addition to this, an excellent emulsifying agent for water in fat or even in Petrolatum, which is—as is well known—not a true fat. When one melts together White Petrolatum and Wool Fat (say, equal parts or even three parts of the former and one part of the latter) one can incorporate in this mixture as much as an equal weight and even twice its weight of aqueous

PRESCRIPTION 4.—*Rose Water Ointment*

℞	Rose Water Ointment	60.0 Gm.

Label: Use as a soothing application to the skin.

fluid. Thus, in "weeping eczema" the decongestive application given in prescription 3 may be useful, not only to decongest but also to relieve itching of the excoriated, therefore water absorbent, surface.

From what has been said, it is evident that it is inadmissible to employ glycerin instead of the rose water as has been proposed for cold cream, because of better keeping qualities; for glycerin is nonvolatile and, being hygroscopic, irritative by withdrawing water from the skin. It is also obvious that it is poor policy for the physician to tell his patient to get "any good cold cream" and apply it to the affected part, because there is no telling what kind of cold cream the patient would get. It is better to write a prescription for the official preparation.

ZINC OINTMENTS

The official Ointment of Zinc Oxide (Unguentum Zinci Oxidi) contains 20 per cent of the Zinc Oxide, which, one may visualize, might increase the soothing effect of the Simple Ointment, which is the vehicle, by the zinc combining with irritative acids produced at the seat of the disease. It is also possible that the opaqueness of this salve is of value by shutting out the irritative rays of sunshine.

After an ointment has been applied, something generally needs to be done to keep it in place. For soft ointments, some nonabsorbent material, such as oiled silk, rubber tissue or paraffin paper, or a wire gauze screen dressing is required; otherwise the coverings get more ointment than the skin.

With as dense a salve as the "Paste" of Zinc Oxide (Lassar's "Paste"), which contains 25 per cent each of

Zinc Oxide and Starch in White Petrolatum, keeping it in place is less of a problem. It is so firm that, after its application, liberal dusting with Talcum forms a crust which keeps it in place. On exposed surfaces, a "face powder" of suitable skin color may be used, which has the advantage of making the application less conspicuous.

The Paste of Zinc Oxide (Pasta Zinci Oxidi), formerly official in the National Formulary under this title, contained 2 per cent of salicylic acid. Owing to the fact that this addition occasionally produced irritation, it has been deleted from the formula now official under this name, and the preparation made according to the old formula must now be prescribed for under the title Paste of Zinc Oxide with Salicylic Acid (Pasta Zinci Oxidi cum Acido Salicylico). It is very probable that in most instances of subacute dermatitis, for which Lassar's Paste is a very useful and popular application, the presence of the salicylic acid is of value. It would be more rational, however, were the physician to prescribe the exact amount of salicylic acid he desires, which in one case of trichophytosis (ringworm, athlete's foot) may need as low as 1 per cent and in another as high as 10 per cent. The latter strength is needed when curative exfoliation is required; but it is certainly much too great in cases with an acute inflammatory reaction.

It is, indeed, a good general principle that the medicating ingredient should be added by the physician to meet the indications present rather than that a medicated ointment be ordered, for no set formula can take care of the needs of all the various conditions met in practice. By habitually prescribing fixed formulas, the physician never acquires the "sense of proportion" that should enable him to fit the remedy properly to the case. A 10 per cent salicylic acid ointment is simply ordered by writing prescription 5.

PRESCRIPTION 5.—*Ten per Cent Salicylic Acid Ointment*

℞	Salicylic Acid	3.0 cc.
	Paste of Zinc Oxide	30.0 Gm.

Mix and label: Apply to affected parts.

As to their influence on absorption through the skin, of which so much was made in the past, recent studies point to the conclusion that the vehicle has little if any influence on absorption, excepting a retarding action. A volatile drug, such as methyl salicylate, which is absorbable through the skin will be absorbed regardless of the vehicle. Even with such volatile material, the quantity absorbed, when applied in ointment form to the human skin, is so small as to indicate that the fatty ointment vehicles exert a retarding influence on absorption of drugs through the skin. Nonvolatile substances are practically not absorbed through the skin, unless they are lipotropic, as is, for example, cantharidin.

PRESCRIPTION 6.—*One per Cent Gentian Violet Paste*

℞	Methylrosanilin	0.5 Gm.
	Tragacanth	3.5 Gm.
	Physiologic Solution of Sodium Chloride	50.0 cc.

Mix and label: A thick layer of this paste on four or five thicknesses of gauze to be applied as a dressing.

PASTES

For moist raw surfaces a paste, e. g., one containing tragacanth, is much more likely to meet the indications than an ointment. Thus, for the treatment of an acute burn of limited extent, after a preliminary application of a compress of 25 per cent magnesium sulfate solution, a 1 per cent gentian violet paste may be ordered, as in prescription 6.

The Tannic Acid dressing, life saving in extensive burns, is not desirable for those of limited extent, as the surface layer of cells must be sacrificed to its coagulant action.

These examples might suffice to demonstrate that it does make a difference what ointment vehicle is chosen. It may make the difference between success and failure.

719 South Ashland Avenue.

EFFICIENT LABORATORY SERVICE IN THE SYPHILIS CONTROL PROGRAM

ARTHUR J. CASSELMAN, M.D.
CAMDEN, N. J.

NOTE.—*The article by Dr. Arthur J. Casselman and the articles by Drs. John H. Stokes and N. A. Nelson, which follow, conclude the symposium on the control of syphilis, the other articles in which, by Drs. R. A. Vonderlehr, Dudley C. Smith and Joseph Earle Moore, appeared last week.*—ED.

The laboratory service to be discussed here is limited to the examination for spirochetes and serologic tests for syphilis. These are the important public health laboratory tests used during the most infectious period. It is beyond the scope of this discussion to include urinary tests for nephritis from treatment by heavy metals, icterus index tests for the extent of arsenical hepatitis, or even colloidal gold tests of the cerebrospinal fluid. Although attempts are being made to break down barriers and make no distinctions between public health laboratory work and the innumerable other laboratory tests useful in the private practice of medicine, present budgets will not permit the addition of these other examinations without the sacrifice of more necessary tests and without lowered efficiency.

The first opportunity to diagnose syphilis and the best time to treat it is in the primary stage. About ten or more days after the infecting contact, when the sore first appears, at which time the diagnosis usually can be made with certainty only with the microscope, is the first and best chance to eliminate a source of infection by means of accurate diagnosis and treatment.

The ordinary darkfield examination should supplant substitute diagnostic methods of less reliability, such as india ink preparations, or staining by silver or by various aniline dyes. The darkfield examination for syphilis is a technical procedure which needs to be done under the best of conditions to make it reliable. The sore should have been free of any local antiseptic for at least twenty-four hours before the examination is made, and no general antisyphilitic treatment should have been given. It is surprising however, to find that in many cases the most radical forms of local treatment have had no influence in causing a disappearance of the spirochetes of syphilis. On the other hand, it is usually a waste of time to look for spirochetes twenty-four hours after an adequate dose of neoarsphenamine.

The two most important factors in the examination are the use of a satisfactory instrument and a careful operator. At one time the market was flooded with poor instruments, such as suprastage condensers in the form of a heavy glass slide, and certain types of

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substage condensers which when adjusted were continually sliding or dropping out of correct optical position. Then there was the type with a tiny substage electric bulb as an entirely inadequate source of light. The operators were even worse than the instruments. Many persons were using the darkfield apparatus, usually an inadequate type of this instrument, without any training and without a careful study of the manufacturer's directions. The operator rarely was paid for his services, which also were more urgently required elsewhere. For these and other reasons, chiefly economic, syphilis being most common to the "on relief" type of person, the darkfield examination is a much neglected diagnostic procedure. Yet, under proper conditions, the darkfield examination can be made the most accurate and efficient diagnostic procedure for the control of syphilis.

This examination can be made more readily available to persons in distant rural communities by adopting the procedure of having specimens sent by mail to the central state laboratory, as long advocated by Harrison in England. This method of having darkfield examinations done by mail must always be considered as an inefficient substitute for the examination of the patient by an expert diagnostician. There are many errors that are likely to creep into the diagnosis made by mail. In the first place, the serum from the sore is removed by a novice; any one doing sufficient work to be an expert would have his own darkfield apparatus. The novice is not so likely to know or observe the rule that no antiseptic should be used on the sore for at least twenty-four hours before the examination; that no internal antisyphilitic drug, particularly intravenous arsphenamine, should be used before the darkfield examination; that the sore should be cleansed mechanically and the serum should be removed preferably from the edge of the ulcer, and that the specimen should contain not too many red blood cells. It is possible also for the expert to remove fluid from enlarged glands when the examination of the sore is unsatisfactory.

This examination is best made by an expert physician who can afford to give it the necessary time and care. These conditions can best be met by the physician who maintains a private diagnostic laboratory, or by the diagnostician in a syphilis clinic which is not too much rushed with other work. If there is a sufficient volume of work, the microscope should be set up permanently for darkfield examinations only. The cardioid type of substage condenser produces the best illumination, much better than the paraboloid type. Certain arc lamps produce the best light but usually they are expensive and troublesome. There are many satisfactory filament lamps producing as much light as the 100-watt projection bulb. Most of these, to be satisfactory, need a condensing lens. A satisfactory cheap type is the variety that utilizes a flask of water as a condensing lens between the light bulb and the microscope. It is a good plan to have the microscope and light source screwed fast in proper relation to each other on a board, to avoid time-consuming adjustments. Keeping a microscope out of general use in this manner may seem extravagant, but if the apparatus is not always ready for use the examinations are liable to be neglected. This is a costly examination and it will not be done properly unless the costs are met either by private or by public funds.

To encourage the use of this test, all possible facilities must be encouraged. When it is apparently impossible for the patient to get transportation to an expert, the examination of specimens sent by mail in capillary tubes to the state laboratory, as has been done notably in New York State, is the best substitute. I believe it would be better for the patient to travel a hundred miles or even more to get the more efficient examination, but, since few patients can be induced to travel the necessary distance in some rural communities, a substitute is necessary, such as the examination of mailed specimens.

A substitute for the darkfield examination of the primary lesion, which is widely used but is recommended only as a very poor substitute, is a sensitive flocculation or complement fixation blood test. If the serologic test used is very sensitive, many cases will be diagnosed by the third week, and most by the fourth week of the presence of the primary lesion. On account of the fact that at present patients usually delay for about two weeks before coming to a physician for an examination of a primary lesion, the substitution of a sensitive serologic test for an immediate darkfield examination results in a delay in diagnosis and the institution of treatment of only about two weeks. The public needs more education to induce them to have earlier examinations, and better darkfield facilities must be provided.

In New Jersey about ten years ago the state attempted to increase these facilities by supplying darkfield apparatus to those venereal disease clinics which were without any or had very poor equipment, and various other clinics have received similar aid in the past years. One large city laboratory, at the Newark City Hospital, without any state aid, has been providing free darkfield service to the citizens of Newark without any restrictions. This free service is much less used than would be expected in a city of 450,000 inhabitants. During 1935 only thirty-four darkfield examinations for syphilis were made in this laboratory. Some of the reasons for this lack of use are the competition of the large city clinic with its own darkfield service and the competition of many private laboratories. But this competition is an insufficient reason for the small number of examinations made in all these laboratories. The state should attempt to encourage the use of all these laboratory facilities and is doing so. The state medical society should be provided with an accurate list of all public and private facilities, and this list should be corrected annually and printed annually in the state medical journal and be distributed by other suitable means to all the physicians of the state. Technical information should always be available on application to the state venereal disease control officer. Proper standards should be maintained through the cooperation of the state department of health and the state medical society.

The serologic tests become tests of more importance about five weeks after the appearance of the primary lesion. Although the Wassermann test is still perhaps the most widely used test, the various flocculation tests cannot be ignored by any private or public health laboratory.

The Wassermann test has continually been modified in various details ever since it was devised. This test is somewhat complicated and therefore there are many steps, each of which through intensive research has many suggested improvements. The infinite number of possible combinations of these various improvements has brought out numerous named and unnamed modifications. The important improvements are few but so outstanding that about them there is almost unanimity of opinion. It is generally believed that there should

be a fairly close titration of the hemolytic system, so that weak fixation is not obscured by the presence of an oversupply of complement; that better fixation is obtained by prolonged fixation at low temperatures (from 2 to 8 C.) for from four to eighteen hours, than by the old method of fixation at higher temperatures for shorter periods, and that a strong purified antigen such as the alcoholic extract of powdered heart muscle which has been thoroughly extracted with ether and fortified by the addition of cholesterol is preferable to a crude alcoholic extract of syphilitic liver or other whole tissue. These improvements have been devised largely to increase sensitivity. These refinements were necessary to avoid missing so many cases of syphilis, particularly those in the early primary stage and those in which much but still inadequate treatment has been given, and some cases of late syphilis. The test, however, is not qualitatively specific for syphilis, so that the more sensitive the test, the more likely it is to give some degree of reaction in various persons with a marked disturbance of metabolism, such as occurs in some pregnancies and in various febrile and other conditions. Thus, with careful technic, sensitivity is largely an index of lack of specificity. For diagnostic purposes, therefore, it is necessary to relate the sensitivity to some more uniform standards than the names of various serologists.

Attempts at standardization have been made by various national and international committees and various individuals. Standardization has not been accomplished, probably because the attempt has been to standardize the constantly changing procedures rather than the results obtained. Various League of Nations conferences have established approximate comparative values to the various modifications of the Wassermann and flocculation tests, and recently a similar evaluation was sponsored by the United States Public Health Service [1] at the request of the American Society of Clinical Pathologists. These comparisons of the various modifications were made by the use of identical liquid samples of blood and spinal fluid by the participating serologists. The results showed which tests were the more sensitive in a general sense but did not establish any biologic standard as in the case of diphtheria antitoxin.

Standardization by dried syphilitic serum was suggested in 1926,[2] but this plan was complicated by the poor keeping qualities of serum dried by any simple method. In the meantime, the difficulty of preserving dried serum has been overcome by Flosdorf and Mudd,[3] by the relatively simple method of freezing the serum and drying it in vacuo while still frozen. Such a method of standardization is being tried out in New Jersey with their cooperation in drying standardized serum. The results of this study will be published elsewhere. It is planned to supply all New Jersey laboratories, public or private, with ampules of this dried serum, so that they can check their tests from time to time. The basic standard used is a serum which is only strong enough in Wassermann-fixing substance to give practically complete fixation with a very sensitive Wassermann test. It is probable that serum in a dried state will be supplied also for checking the Kline and Kahn flocculation tests.

Wassermann tests should be done chiefly in laboratories in which the volume of tests is large, preferably not less than twenty-five per week, because of the much greater expense per test when only a few tests are made. The flocculation tests are better suited to the smaller laboratories, on account of the stability of the reagents and the rapidity with which the tests can be carried out, particularly the Kline slide test. The greater simplicity of the precipitation tests should not, however, lead to the error of having them done by untrained persons. The studies of the Committee for the Evaluation of Serodiagnostic Tests for Syphilis in the United States showed that, of the tests used, the better varieties of flocculation tests apparently could replace the Wassermann tests. Most serologists seem reluctant to discard the more complicated and expensive, but older and more familiar, Wassermann test.

Whether the Wassermann, Kline, Kahn or other sensitive test is used, the most important reagent in maintaining proper sensitivity is the antigen. The supplying of a reliable antigen by the state department of health to all laboratories would be the cheapest measure to bring all tests up to a satisfactory standard of sensitivity. In New Jersey, small quantities of antigen have been supplied in special cases to a few laboratories. It is hoped that budgetary limitations will not prevent the extension of this service in a systematic manner. It may be necessary, because of the expense, to limit supplies of antigen to small quantities which local laboratories could use merely for checking against their own antigens. But whatever plan develops, this cooperation should extend to all private as well as public health laboratories. If dry standardizing serum and antigens are supplied to local laboratories, it may be well to ask them to cooperate and to report to the state all strongly positive serologic reactions. These reports would be used for checking against the reports of syphilis required by state law, as is done with reports from the state and certain other laboratories. Caution must be used in asking such cooperation of laboratories, as they are already overburdened with nonproductive clerical work, such as the making of too many duplicate reports.

There are some who object to state and municipal laboratories providing free diagnostic laboratory work for syphilis, on the ground that it is improper competition with privately operated laboratories. This diagnostic service was at first provided by private initiative and brought up to a high state of perfection. Theoretically it may be argued that if this diagnostic service is furnished by state or county or city laboratories its use should be restricted to the poor. Such restriction is difficult to put into practice. Usually this free competition with private laboratories takes away much of the work from the private laboratories except when it is evident that the tests are poorly done in the government laboratory. The government laboratory may be inefficient because of an attempt to run on an inadequate budget, but the budget is sometimes inadequate also in a private laboratory because of a small volume of work. "The possibility should be borne in mind that under certain circumstances local private laboratories may be subsidized to advantage for the performance of laboratory work." [4]

1. Cumming, H. S., and Others: Evaluation of Serodiagnostic Tests for Syphilis, Ven. Dis. Inform. **16**:189 (June) 1935.
2. Casselman, A. J.: A Standardized Wassermann Report, 421, J. Lab. & Clin. Med. **11**:421 (Feb.) 1926.
3. Flosdorf, E. W., and Mudd, Stuart: Procedure and Apparatus for Preservation in "Lyophile" Form of Serum and Other Biological Substances, J. Immunol. **29**: 389-425 (Nov.) 1935.
4. Vonderlehr, R. A.; Bundesen, H. N.; Moore, J. E.; Nelson, N. A.; Pelouze, P. S.; Snow, W. F.; Stokes, J. H.; Wile, U. J., and Usilton, Lida J.: Recommendations for a Venereal Disease Control Program: Summary Report of an Advisory Committee to the U. S. Public Health Service, J. A. M. A. **106**: 115 (Jan. 11) 1936.

Syphilis is a disease of the poor, being present among the poor from two to four times as frequently as among the middle or richer classes. The poor are more commonly unwilling or unable to pay for the necessary diagnostic measures. These diagnostic measures would therefore be almost completely neglected among the largest class of syphilitic patients if they were not provided for by taxation or by private hospitals.

SUMMARY

Darkfield examinations are most efficient when the patient is sent to the laboratory of a diagnostician who has the proper equipment. If there are many localities too far distant from a darkfield expert, the state laboratory should examine specimens sent in capillary tubes.

Wassermann tests are usually best done in a laboratory doing at least twenty-five tests a week. Kline or Kahn tests may be done in a small laboratory immediately and checked by Wassermann tests in a central laboratory later.

The state laboratory should cooperate with local private and public health laboratories by supplying them with weak standardized and dried syphilitic serum, and also by supplying sensitive antigens for both Wassermann and flocculation tests.

301 North Second Street.

EDUCATION OF THE PHYSICIAN AND THE MOVEMENT FOR VENEREAL DISEASE CONTROL

JOHN H. STOKES, M.D.
PHILADELPHIA

The health authority is vitally concerned with problems of education in general and with that of the physician in particular. The ideal health officer should himself be an exemplar of the educated physician—not only learned in his special field but a cultivated gentleman with a perspective on human life as well as human ills. In the ideal relationship between the health authority and the body of practitioners of medicine, he should deal with equals as cooperators rather than with pawns to be moved and governed. In such a relation the vital concern of both sides for each other's intellectual and professional equipment is evident without discussion. But there are special and cogent reasons why in the field of venereal disease control the health officer must give exceptional weight to his educational relations, contacts and obligations to physicians. At a time of planning and adjustment for health responsibility, it is particularly necessary that they be kept in the foreground.

The everyday doctor's cooperation is essential. I would emphasize to health officers from such perspective as I have on the field, first, that they cannot in a country such as ours, from the standpoint of tradition, of geography or of population distribution, dispense with the active and constant cooperation of the everyday doctor both in diagnosis and in treatment. No mechanism of state owned or subsidized clinics, no machine tactics, no pushing aside, no effort to fence about and till the venereal disease field as an organizationally controlled public health problem will be wholly effective. The reasons have been discussed elsewhere and cannot be reviewed here.[1] Few patients will travel a mile to a clinic, except under economic pressure, if they can travel a block to a fair doctor. Close the doctor's eyes, discourage his interest in diagnosis, discourage his activity in treatment, and not only does his concern for diagnosis lapse but the mere mechanics of number, distribution and accessibility of patients silently defeats an infection control program except in the most densely populated centers. Do not, therefore, as one public health enthusiast of my acquaintance did, believe that a fiat establishing of a few hundred or a few thousand clinics by executive manifesto in this country is all that is needed to stamp out syphilis and gonorrhea and their minor associates. The examples of Scandinavia and Great Britain, of which much will be heard, are special cases, comparable in a way to the metropolitan areas of our larger cities or to compact homogeneous and traditionally stable population units like the states of New York and Massachusetts. You who will travel everything from the corduroy trail and the gumbo road to the concrete streamlined boulevarded highway and must meet the need of the crossroad and the slum cannot afford to neglect, even less to alienate, the everyday doctor. I proceed with my discussion in the belief that we should set out to enlist his cooperation and to equip him for the needs of the program by every educational device that can be conceived and applied.

SOME GENERAL PRINCIPLES

From general educational experience the lesson may be drawn that, the earlier educative processes are set in motion, the better the finished product and the faster it is turned out. Long range and intensive planning should begin, therefore, with the seedling doctor rather than with the aging oak. The older doctor has, to be sure, one great advantage over the embryo and the young one in the learning process—he realizes keenly what he has missed and yearns for it. In the field which the average doctor must serve in a venereal disease program, however, this is too often a tragically late and ineffective virtue. For alertness, for technical proficiency, for the energy to chase down and to put through, we should concentrate on the young. For the coordinative, the reflective and the experimental, we may then perhaps deal with the mature, but only if previously adequately grounded.

From the field of general education, too, come precious items of technic. Methods of education through eye, ear and hand, testing the relative effectiveness and proper fields of the didactic and the socratic, individual and group presentations, demonstration versus case study and clerkship, the intelligent use of print, the picture both moving and still, the radio broadcast and short wave have as yet many untouched possibilities for the education of the physician. A health authority can therefore well afford to have an expert on teaching methods and an educational division bursting with ideas and schemes for the testing and utilization of the already known, and the development of the new and original in this field. I mean something immeasurably more serious, thought out and purposeful than haphazard bursts of headlines and posterism, which are only the cap, bells, horn and megaphone of education. To meet the requirements of a new era we shall have to go far back into the childhood of the doctor; into his common schooling, into his premedical years. We shall have to invade his leisure if such there is in his professionally active period, with new effort at more

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1. Stokes, J. H.: A Hilltop on the Syphilologic Marne, Am. J. Syph., Gonor. & Ven. Dis. **20**: 231 (May) 1936.

intriguing informative reading. We shall, perhaps, have to put journals beside the outhouse seat for studious and not substitute purposes. We may even plan to reach under the car dash to install the short wave radio that keeps the fast moving doctor constantly alert to the problems and control of disease as the police are informed of crime, giving him short wave broadcasts from medical, research and public health centers and from state and national health authorities. We shall have to make available not mere lecturers and exhorters but more and better individual consultant service—personal, telephonic, spoken, written. On these, the merest scratching of the surface of education is the best that we can as yet show.

THE "INFORMATIVE PROGRAM" AND LAY AGENCIES

There is a disposition these days to oppose as amateurish and presumptuous usurpation the lay organization's tendency to tell us, the medical profession, what to do, or to set about doing it for us. Such reaction on our part is, to my mind at least, short sighted. We have no monopoly of the brains that are applying themselves to problems of human health and welfare. We cannot even reasonably seek a division with laymen along the line of body versus spirit, for both are our concern and theirs. We cannot claim the medical, demanding that they stick to the economic, for who that has practiced does not know that the two are inexorably and tragically one. Let the health authority, then, begin with a cordial acceptance and furtherance of and eager cooperation with organized lay groups concerned with medical and medicosocial problems. It extends our arm and weights our hammer; it steadies our plow in the furrow so to do. It puts the power of money back of our ideas. Of special moment to the venereal disease control officer is the furtherance of cooperation between physicians and groups that can educate for as well as act directly on the problem. We should induce the special lay groups to "take on a flier" in venereal disease education rather than discourage them. The antituberculosis societies, the public health nursing, penologic and child hygiene organizations, health councils, social agencies, parent-teachers' and women's clubs are parts, not opponents, of the armament against venereal diseases. Tell them frankly what is needed, what is lacking. Do your best to induce the medical profession to lay aside its isolationism and join hands with them.

Moreover, in three great blocks of business and professional activity the health authority has been much too backward in using its tact, its power and its prestige for an educationally and practically effective policy—the drug and pharmaceutical groups, the large-scale industries, and the life insurance organizations. Through these three and the organized or socially employed nurses of this country, the whole face of the venereal disease situation could be changed as from behind a director's desk. These groups, educated by us, have power in turn to educate personnel and clientele, and to extend education through patronage, the job, the purse.

Education of the laymen who constitute the physician's clientele is an effective and permissible though not a preferred method of educating the physicians. We as doctors are not and cannot all be leaders, all constantly and encyclopedically informed and effective all around our horizon. How often are even the most alert among us first made sharply aware of an advance in medical knowledge by a patient, who, in these days of spreading popular information, quotes us a clipping and sets us privately to looking up a journal number from which we have otherwise not yet ripped the wrapper? How many of us today learn from an alert medical reporter in *Time* or a syndicated column in a news sheet of the latest pronouncements and progress if not in our own, then in our next door neighbor's field? The health authority is vitally concerned with the lay group's instruments and mechanism for the education of the doctor—quite as much concerned indeed as with the doctor's education of the lay instrument. From the unintentional action of that mechanism we can learn and imitate.

A Schematization of Teaching Method

Route of Appeal	Instrument	Estimated Potential Value: Public	Estimated Potential Value: Average M.D.
Auditory			
Radio	General broadcast	+++	—
	Special local public health broadcast	++	+
	Short wave	?	?
Didactic lecture or address	Exhortative	++	++
	Informative	++	++
	Authoritative ("scientific paper")	+	++
	Professional	—	+
	Curricular	—	++
	Summarizing	—	++
Visual			
Print	News	++++	+
	Syndicated columns	+++	+
	Questions and answers	+	+
	Pamphlets	++	+++ (Pharm.)
	Journals	—	+
	Books	+	++
Projection	Slides (silent or with lecturer)	++	+
	Cinema (automatic machines)	++	?
Poster and advertising	Billboards	?	—
	Poster exhibits	+++	+
	News-sheet advertisements	++	—
	Stamps	?	—
	Aphoristic (stickers, canceling mottoes, and the like)	?	—
Combined Visual and Auditory			
Speaker with slides		++	++
Voice cinema ("talkies")	Fixed locus	+++	++
	Peripatetic	++++	++
Conference	Bureau (institution)	+++	+
	Mass or group	+++	+++
	Personal ("detail man" and other)	—	++++
	Consultative (doctor and patient)	—	+++
	Marriage examination	+++	?
Demonstration	Fixed locus		+
	Peripatetic	—	++++
	Still material	++	+
	Life material	+	+++
Sloganization	Visual or pictorial	++	+?
	Verbal	++	+?
Consultation	Personal	—	++++
	Telephonic or telegraphic	—	++
	Correspondence	++	++++
Clinic	"Dry"	—	++
	"Wet"	—	++++
	Casual	—	+++
	Curricular	—	++++
	Brush-up	—	+++
	Technical	—	++++
Examination	Curricular and quiz	—	++++
	Licensure		++

A SCHEME OF TEACHING METHOD

As I assembled my ideas for this presentation it occurred to me that a classification and summarization of the items and interrelations of educational mechanism in general might guide us in some applications to the venereal disease field. Every agency, lay or professional, uses one or more of these education instruments on both the doctor and the everyday man. I

therefore offer this tabulation as a vest-pocket tickler for thought rather than a finished product, and discuss it on the basis of thirty years of teaching experience.

THE BASIS OF LEARNING

Human beings tend to be preponderantly either visually or auditorily minded, the former being substantially the more numerous group. Most people therefore learn from what they see better than from what they hear. Thinking is also a muscular and motor as well as a mental process. Association trains are therefore built up and fixed by conversion into action as rapidly as possible—by a laying on of hands, so to speak, familiar to us in the aphorism "We learn to do by doing!" What do these principles mean for educational method as applied to the physician? They mean that he usually learns least of all by listening to the didactic lecture. Aside from the fact that it deprives him of the mental exercise of synthesis, it requires all the devices of histrionic and rhetorical talent to make facts stick. More than half the effect is fogged by emotional content, with such primitive stuff as the appeal of sound to the ear and motion and gesture to the eye, rather than logic and intelligence to the mind. Reading of print outranks spoken teaching as an instrumentality because in making its appeal to the visual mind it acts more directly, with less emotional claptrap. Yet what is it that students, medical graduates and practitioners in their county, national or other societies are demanding today? They cry for and we offer them the lecture, the didactic discourse, the speaker, the "scientific communication" or paper, which, if it is not utterly muffed by being droned into the collar or spread as a musty soporific gas among the rows of weary sitters, must for effect be fired in a rat-a-tat-tat of staccato syllables accompanied by jerkings and jumpings, as wasteful of human effort as the two hundred or more rounds required to strike a significant target from a machine gun pill box compared with the solitary silent lethal bullet of the sniper in the tree crotch. Today's flood of printers' ink we so lament is as nothing to the deluge of wasted spoken words in which our educational effort flounders. I give it to you as an impression derived from many experiments in teaching method, and the comments of many of my student cooperators and victims, that good teaching is that which catches the eye and holds it, coordinates what is seen with touch and other senses and converts it into some form of muscular action, positive, investigative or consequential. Good teaching does one more thing as a final fillip: it arouses the learner with a prod or a challenge, which, like the last turn of the screw press, imprints indelibly the image of the fact and its associations on the tables of the memory.

EXAMPLE AND CHALLENGE VS. PRECEPT

In teaching the doctor, then, example (visual) should outrank precept (audition). The graphic chart outweighs the words, the patient outweighs the chart, the personal performance of examination or treatment far outweighs in teaching power any mere visual device such as the witnessing of a demonstration. The demonstration outweighs the lecture, because the witness sees things being done. If he is too far away to see and merely hears, he gets little or nothing—the explanation of the tedium and failure of the overcrowded society meeting and amphitheater clinic. Why cannot everything be done with the talking moving picture then? you ask. Or cannot the visibility to accompany the spoken word be supplied by the silent film or the lantern slide? Because, useful though their contribution to verisimilitude has been and can be, pictures do not live, and hence they do not give that challenge of which I just spoke. The difference is as between the synthesized protein and the living protein, so to speak—an as yet indefinable but essential something which involves the clash, the spark discharge that only the living draws from the living. Lacking the living challenge, by what other devices do we seek to inject the vital spark into teaching? Socrates, the father of education, laid the foundation of the dynamic technic of education in the Athenian groves by the use of the argumentative question. Across the otherwise dead body of the mere fact, I, the teacher, challenge you, the student, to combat. By putting you on your mettle, I invoke a response from your emotional, your adrenal, mechanism—an abortive rage reaction to a challenge which makes the quiz discussion over the case, actual or hypothetical, the most effective teaching instrument in existence. It is effective because it is the method of life, which always questions, rarely tells without a struggle.

Speech making and broadcast, then, is at its best when exhortative rather than informative. The most effective speech challenges rhetorically to action rather than coldly to reason. Great though the worth of exhortation is, all know how short is indeed the life of its message. A pure didacticism is, in general, weak. When, therefore, lectures must be perforce the chief instrument, let us carefully select the material for its ability to impress by throwing an actual or hypothetical problem at the learner in which he is challenged to performance. When does a student really begin to learn syphilology? Not when he reads a chapter on treatment but when the sweat drops from his perspiring brow onto the shaking hand that holds his first syringe. Until that moment, injection has been an unreality, given outline in his mind largely by the challenge of a feared examination, the caustic comment of his teacher. Even this much point to the spear is inevitably lacking in the didacticism of the average medical address, the society postgraduate course, the film, even the best written textbook. If my thesis has weight, it would be well then that the health authority should throw its influence into the educational scale in behalf of the visual and combined methods of the table over purely auditory teaching; that it encourage and develop clinic and case study and the fixing of knowledge by personal examination of the patient, manipulation, procedure, technic, contact with the expert in a consultative capacity over the patient, rather than mere discourse, spoken or written.

RADIO, PICTURES, PRINT

Examined in the light of these considerations, then, I would rate the standard radio broadcast as at once the weakest and the most diffuse of informative methods in our field, suited to exhortation and arousal rather than instruction. As a didactic method with no eye appeal, it demands of those who use it an exceptional command of challenge devices in voice, rhetoric and technic of material arrangement and presentation, if their stuff is to stick. The mere ability to speak words would not, then, make a successful radio teacher. How often the actual demands are

met by the radiorators from our field who address their collars or reading desks instead of the "mike" through a rattle of memorandum sheets and a barrage of "ums" and "uhs," you must yourself decide. Doctors, long suffering though they are in their eagerness for crumbs of knowledge, will turn from an attempt to teach them that denies them even the humor-arousing spectacle of the tortured speaker gasping in the dust cloud of his own remarks. Yet radio, I am convinced, can be made a useful instrument of postgraduate medical education, if only it is skilfully employed.

Of pictures, still and moving, I can only say that years of medical barnstorming and experiments performed in my own classes have convinced me that they are beguiling but comparatively ineffective. Audiences like them for the eye appeal and because they spare thought. I rate them today as suitable largely for addresses after dinner, to keep one part at least of the audience conscious, and to allow the other portion to sleep without annoying or too seriously disturbing the ego of the speaker, on which his delivery so largely depends. As teaching devices, slides have a comparatively small return in fact retention and utilization. A thousand dollar collection of my own now stands idle when I have intensive teaching to do. But these strictures apply less forcefully to the good textbook illustration or diagram, which can stand before one until one is forced to absorb its meaning.

In the matter of print, I believe that we should play up to the student and the doctor, inevitably largely dependent on it as they are, much more than we do, particularly in the ingenious use of typography and systematized arrangement to set out and drive home the high points of factual matter. Thus I use one-two-three presentation, mnemonic devices, alliteration, sloganization, blocking, line set-offs, adequate face differentiation of title, content and special emphasis in all my teaching work. While emphasis may be overdone, the monotony and drabness of medical textual presentations is conspicuously wasteful of teaching energy. Text can be given some of the snap and emphasis of diction. The results of a lifetime of hard thinking and hot living need not be ironed down to the same dull gray of formless type as a count of the micrometer length of paramecium in a hay culture. There is no resultant benefit to the measurements or their significance, and there is a rape of emphasis and artistry in the former which seriously reduces its teaching value. Just as typography was used by the monks to convey beauty and spirit, so today it can be used to convey logic, system, cogency and power.

It should be accepted as a general teaching maxim that anything that can be merely said should as rapidly as possible be brought to print, for from that point teaching can move forward to the more vital discussion of the printed principle and its applications to real life. It is not for nothing that the unexpected discusser from the country who rises in the row of nonentities at the back of the room to drag back your paper to reality begins with "I had a case . . ." In that remark lies the alpha and omega of medical education for the everyday doctor, for he thinks by the case. Let us then, in the "informative program," take this to heart and lean as heavily as we can toward the case lead or attack on our teaching problem, which means essentially demonstration, conference, consultation, clinic, rather than broadcast, lecture, picture, print.

EXAMINATION AND QUIZ

The examination and the quiz still to my mind stand in a place of their own among the major agents for the impression of knowledge. In this opinion I follow the men who have advanced Europe's venereal disease informative program among physicians well beyond our own. I grant you at once that there are certain persons who can pass certain kinds of examinations without evidencing thereby an atom of integrated knowledge or ability to apply it, and some that cannot pass an examination who none the less are intuitive wizards, exempt from the ordinary rules that govern logic-bound minds. But for the large majority, the questions that first our teachers, then state authority, then life itself puts to us are commanding challenges to the mastery of at least enough to pass. With the machinery of examination, therefore, the public health authority is inevitably deeply concerned. It cannot afford to leave to a sense of duty or self interest the physician's acquiring of a knowledge of the principles and technic of control of an infectious disease. Ipso facto the forward looking health authority, knowing that the practicing physician holds an essential place in his personnel for venereal disease control, will seek a contact first with the medical school, to secure adequate instruction in minimal essentials and adequate undergraduate examination by its faculty, and second with the state licensing authority to be sure that, if one fails to check or to stimulate the incompetent, the second will detect and stop him.

THE CURRICULAR OR FORMAL EDUCATION OF THE PHYSICIAN

The equipment of the physician for comprehension of the venereal disease problem should begin, allow me to insist, in the common schools; indeed, at his mother's knee. The unfitness for the demands that all sex-linked problems make on character and human insight, which one cannot but see in too many medical students and practitioners, can be dealt with only by a process of education in general and sex education in particular, which should begin in the early years of life and through such schooling as pioneers like Beatty of Westchester County, N. Y., have here and there developed against opposition and penurious educational policy. The health officer can be none other than a social hygienist. Inevitably, therefore, in behalf not only of the public but of his physician cooperators, present and to come, he must inquire into and concern himself with this phase of education. I make this statement the more emphatic because you as well as I can recall the day when the social background of syphilis and gonorrhea was considered a mere side issue, the affair of a tender-minded group of hush-hush pussyfooters preaching the unco guid of continence and the marriage vow a safe distance behind the hardy skirmishers and marchers of the public health syringe brigade. Today the mistaken social criteria still applied by physicians to venereal disease problems, the *noli me tangere* attitudes, the noncooperation, the refusal by the physician of the opportunity and duty of personal and public education, the ignorance of sex psychology and hygiene and the tacit acceptance or active advocacy of false public policies like legalization of prostitution, are dyed in the wool miscomprehensions and perversions of outlook remediable only through the general mechanism of education. For their persistence we shall be in part responsible.

PREMEDICAL EDUCATION FOR VENEREAL DISEASE CONTROL

If it will take sex education as such, through the adequate human bodily hygiene course as well as a general biologic training in the common schools, to make the physician a comprehending human being, it may well take some decided changes of emphasis in his premedical education to make him an adequate counselor, a preventionist, a humanist, a leader, and a cooperative and intelligent student and participant in the program of the state with reference to health and disease. The public health authority can well afford then to study the equipment of the college-degreed medical school entrant, who must as a physician deal with and "inform" the candidate for medical examination before marriage; recognize the moron carrier and spreader of venereal disease; sympathetically grasp the juvenile sex problems of the school and the street, and cooperate and advise in the field of abnormal and normal psychology, sociology and educational method and principles. Is there not perhaps a little excess emphasis on languages, physics, chemistry and mathematics, and neglect of the studies that help to make the humanist? On just such forward looking thought as this with regard to the premedical collegiate years depends the sort of ground you will have to till in the public health campaigns of the 1940's and the furrow-driving capacity of your medical plowman.

MINIMAL ESSENTIAL MEDICAL INSTRUCTION

With the medical student as such begins the problem of the inculcation of minimal essential knowledge and the differentiation of education on the basis of the student physician's special interest in the field. It is time for the health authority to join actively with medical faculties in decisions and plans for a basic required course in venereology. Speaking for the syphilis side of it, in a recent plan for curricular revision the Department of Dermatology and Syphilology of the University of Pennsylvania proposed the division of the undergraduate work in syphilology into required and elective material, with time requirements and field coverage which I believe are fairly representative of the minimal teaching needs of the public health movement against syphilis as I see them. This contemplates two consecutive teaching hours (clinic) once a week for one semester and two two-hour sessions of practical work a week for six weeks, obligatory for each member of the third year class. The work of the fourth year is purely elective. This minimal essential or required course includes about 250 pages of text and from eighty to 100 actual patients, who are presented before the class by 160 student examiners. In the technical teaching sections the student personally witnesses the demonstration of Spirochaeta pallida by darkfield, the collection of specimens for examination and mailing, the technic of precipitation and complement fixation tests, draws blood, sees and mixes or prepares for injection the more common arsenical and heavy metal preparations, and practices the technic of intravenous and intramuscular injection on specially devised manikins, plus a patient or two for the more proficient. Two hours is devoted to a discussion of contact tracing, follow up and social aspects by the chief social service worker.

Such a program covers:

1. The course of the disease. Most practitioners of today are grievously ignorant of its essential features and mechanisms.
2. The use of central facilities for performance, and the principles to be used in interpreting laboratory procedure and results in diagnosis and treatment.
3. The general principles of treatment.
4. The principles of control of infectiousness.
5. Technic, intravenous, intramuscular.
6. Reaction prevention and control.
7. A system for early syphilis and prenatal syphilis.
8. Practitioner's management of latent and late syphilis, with don'ts.
9. Social and state responsibility and control.

For the senior elective work, which in my experience will attract one in each four or five members of our classes, is reserved the actual mastery of darkfield technic, the differential diagnosis and intricacies of system syphilis, consultation problems and treatment prescription.

It will be noticed that the average student is not taught the use of the darkfield or the performance of any test. The providing of the facilities for such laboratory procedures is your problem, just as with gonococcus smears and diphtheria cultures, and the student is taught that it is your problem, or that of a laboratory specialist, and to demand such service of you. He merely learns to secure the material for examination. He is taught what to expect of you, how to check and control you, how to criticize you and himself, and how to interpret the result you report to him. You will notice, on the other hand, the emphasis on treatment technic and the prevention of trouble. Nothing is more important, for the whole structure of modern syphilis control rests on treatment technic. A schedule can be set down in black and white, but the patient is actually treated by adequate technic and skilful trouble-shooting. The emphasis on them is justifiable, for without them patients do not carry through to infection control and cure. Moreover, the intravenous and intramuscular technics used in syphilis treatment are essential to all medical procedure and the time spent on them is part of general medical education. Nowhere in the medical practice of today is ignorance more woful or the patient more abused than in commonplace procedure. The manikin is important, for the attempt to teach technic on the human subject wholesale in outpatient clinics and hospitals means wholesale default and lapse in treatment among patients who will not tolerate painful and reaction-producing mishandling by students.

Three other items deserve to be added to the field of the minimal essentials: instruction in the strict following of advice from a consultant source, a hard thing for the medical individualist to learn; knowledge of where to find facts and how to distinguish fact from buncombe; and knowledge as to how to keep up to date. On all three we teachers would like to refer as sources to a well organized and effective state as well as national health authority and such now well established agencies as the Cooperative Clinical Group and the League of Nations Health Organization, their personnel and publications.

Minimal essential knowledge for the student and physician being thus defined, the public health authority should everywhere extend cooperation and make every effort to make the material and teaching of such a course available to every graduate practicing physician who may diagnose or treat syphilis. As an example of what might be done, I recall a winter's course organized recently by two local medical groups in a large city. It followed an unwelcome but evidently

challenging discussion by an outsider under the auspices of a council of social service agencies on the part physicians were not playing in venereal disease control. The course as presented was voluntarily organized by local medical groups and followed surprisingly closely the leads of this outline. It could be reduplicated today by many institutions and medical organizations under public health leadership. It could be offered by clinic and teaching hospital organizations, and it could be adapted to interns, whose conspicuously deficient instruction in syphilology has just been aired by Clarke and Exner. It requires at most not over fifty-six hours of instruction, which under pressure might be reduced to forty or even less for smaller groups that can be brought closer to the patient and the equipment—two hours a day for less than six weeks, half time for two weeks, full time for one week, and two and a half hours a week from October to February or February to May. Such courses can be ideally given in large cities with medical and teaching centers.

THE CULTIVATION OF SPECIAL INTEREST

Since it is to be understood that there are those both in and out of school who will for lack of interest never master or employ even minimal knowledge in this field, regardless of opportunity or pressure, we should reinforce ourselves against their indifference by the cultivation of special interest wherever possible. The specially interested student and doctor are the material of that large informal body of venereologists, from ten to fifteen thousand at least, which treats 60 per cent of the cases of syphilis and gonorrhea. They are, moreover, the recruiting ground of the health authority's own venereal disease personnel. It is time to do away with the uncomfortable undercurrent of opinion that when a man comes back from the war or can get no other job he goes into venereal disease work. Here I am sure the health authority has, then, an opportunity. It should seek to learn the names and intentions of those who, even by applying merely for a student elective in syphilology, show a leaning toward venereal disease problems. Hospital interns and men training themselves specially for venereal disease and associated fields should be objects of personal solicitude to health authorities who appreciate how much a trained and interested personnel contributes to accomplishment. A contact officer or a contact bureau or division in the national service at least, equipped with cards, maps and follow up, should be, as Becker once suggested to me, constantly on a still hunt for eligible men from students and interns to practitioners and clinicians, to be developed into local consultants, interested cooperators, clinic aides and chiefs. When these men enter the hospitals or settle in the towns of your states, give them welcome and substantial official encouragement and support from the start.

SUMMARY

One would wish, did time permit, to give some discussion to the training of the specially interested medical student by electives; the opportunities to be developed for the equipment of the semispecialist in whose hands is more than 60 per cent of the venereal disease treatment of this country; the specialist in venereology as distinguished from syphilology or urology; the worth, possibilities and as yet ill supplied need for authoritative consultant knowledge, available under all the categories covered by this word in the table. One should critically consider too just what the education of the man now actually out in practice lacks in this field and how those lacks can best be met —whether by exhortations and "informative" addresses, by group meetings of already constituted societies, or of special institutes organized by the public health authority; or rather, as I feel, by the development of peripatetic but none the less adequate field teaching personnel, which, equipped with the stuff and the knowledge, goes to the doctor by auto, train or truck as he faces or bends over his problem and shows him, with the case before him, how and why. I could devote several more pages to special technics for "putting knowledge over," such as the slogan, the sharp telling phrase that makes facts stick. And I could talk long and seriously about the impending dangerous influx of half-baked, undertrained men, neither adequate venereologists nor competent public health officers, who will besiege you and insinuate themselves into key positions as funds are allocated to venereal disease control by state and national governments. An adequately equipped man for your work can hardly be the product of less than a year of full time in an organized teaching clinic—and top positions carrying consultant responsibilities demand two or three years. I cannot urge you too strongly to be exacting and critical of the equipment and training of men to be taken into your organizations at this most important time. Mere personableness and connections will apply and, if accepted, set your clocks back a decade or two —and more.

But I believe that if I can induce you to look back over the principles I have set forth, and you find them acceptable, you will be able for yourselves to examine and select methods suited to special situations. You will then see that I lay emphasis on training the young rather than the old; on case teaching rather than lectures and slides; on socratic quiz and challenge rather than didactic teaching, whether before classes, in books or over the air; on a field teaching force which meets individuals in consultation over the patient; on the brush-up group working intensively at doing things in a teaching clinic rather than at merely hearing things anywhere else. Is it right or necessary that the "Voice of Experience" in the field of mental health (which, by the way, uses the case method) should occupy almost acres of space in a great modern office building answering questions, when beyond an occasional query and answer column and a scattering of overdriven consultants there is no equivalent mechanism for helping the average doctor confronted with the greatest infectious disease problem of today directly out of his quandary over "the case"? What would it mean to you in such a situation, if without a sense of imposing on some one and as a legitimate function of the state's cooperation in your individual practice problems you could wire, ring a number or write, and get something personal and really helpful done within a few minutes or hours about a treatment schedule, a reaction you can't control, an infection being passed along while you stand helpless, a drug that won't do what the book says it will? If you will think thus, I am sure that you will think more clearly and in the end more economically, and more directly to the point, on medical cooperation and education in the probem of venereal disease control.

THE CIVILIAN EDUCATIONAL PROGRAM IN THE CONTROL OF SYPHILIS

N. A. NELSON, M.D.
Assistant Director, Division of Communicable Diseases, Massachusetts Department of Public Health
BOSTON

Maimonides, the great Jewish philosopher and physician of the twelfth century, wrote that success is the synthesis of four elements—good material with which to work, a good plan according to which it may be fashioned, good technic in the execution of the plan and, finally, a good objective. Perhaps there may be found in this philosophy a formula for the development of a successful program of civilian education in the control of syphilis.

The objective has been identified. Is it a good one?

Syphilis, like gonorrhea, may have had its origin in antiquity. It is certain, however, that it has enjoyed universal prevalence since early in the sixteenth century. Unfortunately, its recognition as an almost epidemic disease came at a time when public morals were such as to facilitate its rapid spread and to fix attention almost exclusively on its relation to sexual promiscuity. It soon became the badge of loose morals. This acceptance of syphilis as invariably the offspring of iniquity remained unchallenged until a tidal wave of prudery made challenge futile by burying sex itself in the depths of its tabu.

So thorough was the burial and so potent the tabu that until recently few persons outside of medical or social hygiene circles dared say either sex or syphilis. The physician is still by no means rare who declines to treat the disease because of its moral implications. The health officer is unusual who does not resist the intrusion of the control of syphilis into his heretofore "uncontaminted" program. The employer promptly kicks into the street the employee whose "positive" blood makes him doubly undesirable as obviously immoral and disgustingly diseased. The educator is horrified to whom it is suggested that syphilis is worth study as an economic and social and health problem. The editor fatuously insists that he must "protect the newspaper-reading public from the indecent," and the Columbia Broadcasting System, rather than permit the mention of syphilis, puts the commissioner of health of the state of New York off the air.

Fortunately, however, there are always those in whom the urge to know the truth cannot be denied. Such ones distinguished between syphilis and gonorrhea in the nineteenth century. They discovered Spirochaeta pallida, developed the Wassermann test and synthesized arsphenamine, all within a decade early in the present century. They have learned that among all communicable diseases syphilis is one of the most dangerous, most costly and most prevalent and that the majority of infections occur between the ages of 15 and 30 years. They know that if discovered in time the disease can be cured and its communicability quickly controlled, that the number of innocently infected women and congenitally infected children is legion, and that innocent infections are avoidable and congenital syphilis utterly inexcusable. They are sorely burdened with the knowledge that the sum total of misunderstanding and misery and injustice which has arisen out of public ignorance of syphilis is beyond imagination. They believe that it is high time that people were told the truth about this disease which so vitally concerns them.

The development of a good technic for the fashioning of a program of civilian education in the control of syphilis deserves serious consideration. A logical first step might be the education of ourselves who propose to be the teachers of the public. How well are we prepared to teach?

Have we added so much to our own knowledge of syphilis that our own attitudes toward the infected are any more wholesome or tolerant than the attitude of the public we would educate? Have we, as health officers, learned as much about syphilis, in proportion to the information available, as we have about smallpox, diphtheria, typhoid fever or tuberculosis? Are we so enlightened that we welcome the challenge of syphilis or do we secretly resent the appearance of this "immoral" intruder? Are we willing to fight for appropriations for the control of syphilis with the same vigor and persistence with which we have fought for appropriations for other health department functions?

Are we annoyed by the realization that, in order to prevent innocent infections, we shall be obliged to spend time and money for the enlightenment and encouragement and decent treatment of the guilty? Are we inclined to rush to the police for assistance in returning a patient to treatment, thus making disease a crime, although we would resent the suggestion that we needed police assistance in the control of any other communicable disease?

Are we able to appreciate that, although sexual promiscuity is an epidemiologic factor in the spread of syphilis, it must not prejudice our approach to the problem of controlling a disease which is dangerous to the public health? Do we think of syphilis as a "venereal" disease? If we do, how do we propose to convince the public, to which venery is synonymous with lasciviousness, that syphilis is altogether too often not a venereal disease?

Have we pulled ourselves out of the mire of misunderstanding and ignorance and prejudice that we may lead others to more solid ground, in a higher and cleaner atmosphere? How otherwise can we declare, with any sincerity, that we propose to develop a program of civilian education in the control of syphilis? How otherwise can we believe that our technic will be good or that the objective is good?

It should not be necessary to worry much over the plan according to which the material may be fashioned into a program. Experience should have taught us by now, if it ever can, what the channels are for public information and education.

Attractive literature (with emphasis on its attractiveness), in abundance both as to quantity and variety, talks to public audiences whenever the opportunity presents itself, exhibits wherever they may suit the audience and whenever there is time for their study, moving pictures when the price permits and the returns are worth the cost, radio talks, dramatizations, press releases—these are the plan. We know them, we have used them, they are there to be used again. There is no magic or yet to be discovered channel through which the public may be taught to know syphilis.

It is evident, of course, that certain groups should have special attention in our plan. Syphilis is acquired largely by youth. It is transmitted by uncured grooms to innocent brides. Congenital syphilis is the product of untreated syphilis in pregnant women. The ravages

Read before the Annual Conference of State and Territorial Health Officers with the Surgeon General of the U. S. Public Health Service, Washington, D. C., April 13, 1936.

of late syphilis are of the greatest economic importance in that part of the population which is over 30 years of age. The employer will not tolerate syphilis in the employee. School teachers labor under the misapprehension that congenital syphilis is forever communicable and invariably disgraceful, to the sorrow of the unfortunate child. Of these groups, therefore, a good plan will be particularly heedful; but what program of health education does not need modification to meet the requirements of a specific problem!

It may not be safe to complain too bitterly that the radio and the newspaper are not freely open to discussions of syphilis. It is possible that if every radio station and every newspaper (or even one station and one newspaper) should call our bluff by opening its microphones and offering its pages to us tomorrow, we should be caught with nothing in our hands. Material is essential to a program of health education. The radio and the newspaper will become available with time, with proof that public condemnation does not follow, and with evidence that we have something sound and sensible to say. No educational program ever sprang into full-fledged being over night.

It would seem that, if Maimonides knew what he was talking about, success must be well within our grasp. Our objective is good. A good technic may be developed if we will but avail ourselves of knowledge that is ours for the taking. A good plan is in our hands. But what of material, if I may define material somewhat narrowly as that knowledge which has been put into form suitable for presentation to the public? There's the rub! There is no material!

The Massachusetts Department of Public Health has produced, reprinted or purchased a total of more than 800,000 copies of fifty brochures on gonorrhea and syphilis during the last seven years. Thirty of the fifty are of interest only to the physician or medical student. Fifteen are addressed to the nurse, social worker and health officer. Three are for the information and instruction of the patient. Only two are devoted to public education, and, as I wrote them myself, I can say that they are nothing to be particularly proud of.

Good medical papers are relatively easy to find. It is not too hard for a health officer who believes in his subject to prepare something of interest to other health officers. The idea, rather than the style, is of first importance in a technical paper. But few of us have the happy faculty of being able to write interestingly for the public, and fewer of us know enough about syphilis to write anything at all.

I have yet to discover the story of syphilis (or any part of it) written in such a way that it could be used by the health department and would arouse the interest of the man in the street. There may be such material somewhere, but neither have I been able to find it nor do I know of any agency that might have discovered it for me. I should like to buy some, since I cannot produce it. The average health officer will need all the assistance he can get from some central collection and production agency (such as the National Tuberculosis Association in its field) if he is to acquire material for public education in the control of syphilis.

If any one of us were granted an appropriation tomorrow for the employment of a single sane and unemotional lecturer who knew anything about syphilis, where would one be found? I would like to borrow half a dozen radio talks on syphilis which are not dry and uninteresting tables of statistics, or emotional eruptions on sex, or too vivid descriptions of the anatomy involved or the too frank discussion of the unpleasant signs of the disease. Who has them to lend? There is neither material nor any one with both interest and ability to produce it.

Finally, some decision must be made as to the part which the health department is to play in the development of the broad social hygiene program. Whatever the decision, it will determine the content of the material to be produced.

The social hygienist would promptly repudiate the allegation that the primary object of the social hygiene program is the control of disease. He would define syphilis and gonorrhea quite simply as the more prevalent and identifiable signs of poor social hygiene. He would point to the unmarried mother, the prostitute, sexual promiscuity, family discord, separation, divorce, perversion, sex crime and a multitude of social ills as other symptoms of the misunderstanding and the misuse of sex. He would use legal measures and education for the control of the prostitute, protect the feebleminded, lift the unfortunate out of miserable environments, provide ample and wholesome community recreation, prepare youth for marriage, give counsel to the married, and make sex character building as much a part of the education of every child as any other form of character building.

Obviously these objectives are so broadly social as to be far beyond the scope of a health department program. It is also evident that this is a long-range program, while there is much to be accomplished toward the control of syphilis by the immediate application of medical and epidemiologic procedures, which is a function of the health department.

However, preventive medicine is the keystone of the arch of public health. Case finding and treatment have accomplished wonders in the control and prevention of tuberculosis, for instance, but, in the long run, higher standards of living, better housing, good nutrition, more rest and recreation and more wholesome working conditions will not only help in the prevention of tuberculosis but make it easier to hold onto the gains that are made. The health department cannot be responsible for this long-range and broad program for the improvement of standards of living, but it can point to the relation between tuberculosis and poor standards of living, and it can encourage and support those who seek to improve those standards.

So it is with syphilis and the social hygiene program. It has been said that the difference between the European and American plans for the control of syphilis and gonorrhea lies in the fact that Europe puts the greater emphasis on disease control and America on social hygiene. There should be a happy middle ground.

Maimonides has defined the ingredients of success. There is not a good health officer anywhere who has not found them out for himself. To improve and protect the public health is every health officer's good objective. To learn what there is to know about a problem and to approach its solution without prejudice makes for expertness in technic. To use a well known and often tried plan, lacking a better one, is common sense. Good material is the product of knowledge and a desire to put knowledge to work. A program of civilian education in the control of syphilis is nothing more than a program in health education. Success in the control of syphilis will come to those who apply to the control of syphilis the age-old formula for success.

A minister was called on to substitute for another in a rural church. He took his small daughter with him. As they entered the door of the church he dropped a fifty-cent piece into the collection box. At the conclusion of the service, as he was about to leave, a vestryman approached him and said "It is the custom in this church to offer to any visiting pastor, as his remuneration, the day's collection. I regret that it is so small." He handed the minister fifty cents. Several minutes later, as, with his daughter, the pastor walked slowly out of town, the young lady broke the deep and gloomy silence with "Well, daddy, if you had only put more into it, you'd have got that much more out of it."

Council on Foods

THE COUNCIL ON FOODS HAS AUTHORIZED PUBLICATION OF THE FOLLOWING REPORT. FRANKLIN C. BING, Secretary.

THE NUTRITIONAL SIGNIFICANCE OF BRAN

Wheat bran consists of the outer coats of the wheat grain which can be separated from the germ and various grades of flour during the milling process. The commercial product usually contains some of the wheat embryo and a small amount of endosperm because of the difficulty of making a sharp separation. The bran amounts to approximately 12 to 15 per cent of the grain. It has come into prominence since the development of modern methods of milling, which date back to about 1870. At first it was used almost exclusively for feeding farm animals, but subsequently it was introduced as an item of the human dietary. From the standpoint of human nutrition, it should be mentioned that there are two principal varieties of bran on the market. Untreated bran is the mill product widely used for feeding animals and also, after cleaning, to some extent for incorporation into dough mixtures for making certain bakery products such as bran muffins. The prepared type of bran has been subjected to processes designed to improve its palatability, and it is distributed primarily as a so-called breakfast cereal food.

TABLE 1.—*Comparative Composition of a Crude and a Prepared Bran*

Component	Moisture-Free Basis: Crude Bran (Based on Report by Osborne and Mendel) per Cent	Moisture-Free Basis: A Prepared Bran (Based on Report in THE JOURNAL, Feb. 9, 1935, p. 474) per Cent
Ash	7.2	8.4
NaCl	...	3.2
Fat (ether extract)	7.1	3.3
Protein (N × 6.25)	17.0	14.3
Sucrose	1.6	9.2
Crude fiber	9.4	7.9
Carbohydrates other than crude fiber (by difference)*	59.3	66.1

* Osborne and Mendel found 27.6 per cent pentosans, 13.4 per cent starch and 4.2 per cent dextrin in crude bran, moisture free.

The processing may vary somewhat. The general procedure consists of washing the crude bran (sometimes with dilute acid, then with water) and mixing with malt syrup, sugar, salt and water. The mixture is cooked and finally dried and packaged. Frequently it is shredded or toasted before being packed in cartons.

The two varieties, crude and prepared bran, differ in their composition because certain soluble substances are lost during the washing of bran and other substances are added. A number of years ago Osborne and Mendel [1] reported an analysis of a crude bran product. Their figures, in table 1, are reported on the water-free basis. For comparison, published figures for a prepared bran product are also shown. They bring out a number of essential differences between the so-called breakfast food type of bran and the ordinary milled product. It may be noted that the amount of fiber which is present in the two products is somewhat less in the prepared bran than in the original material. Another difference not shown in the table between the commercial bran and the mill product is in the amount of phytin that is present. The washing process, especially if done with dilute acid, may remove considerable phytin from the original material. Phytin exists in bran as the potassium, calcium and magnesium salts of the hexaphosphoric acid ester of inositol. The significance of its loss can be appreciated when it is recalled that early investigators showed that cows fed on washed bran become constipated. However, Cowgill and Anderson [2] concluded from their work with men that the loss of phytin is of no significance as far as the laxative properties of bran are concerned.

Other differences between crude and prepared bran to which attention should be directed are the concentrations of sodium chloride and of iron. Salt is usually added in the preparation of the breakfast foods and this accounts for the presence of about 2 to 3 per cent sodium chloride. The amount of iron in the prepared bran products is stated to be from about 17 to 25 mg. per hundred grams.[3] Crude bran ranks as a food rich in iron; it contains about 8 to 10 mg. of iron per hundred grams of dried bran.[4] Analyses performed in a university laboratory for the Council on Foods are reported in table 2. These figures show that the iron content of certain bran products as purchased on the open market is considerably higher than the amount of iron which is to be found in the mill product. Considering that there are few food products of vegetable origin which even approach the high iron content of crude bran, it is difficult to understand how the iron content of prepared bran can be almost double the iron content of the mill product. This raises the question of whether the iron content of wheat bran is exceedingly variable or whether iron is introduced in some manner during the processing treatment.

TABLE 2.—*The Iron Content of Crude Bran and Prepared Bran*

Product	Moisture, per Cent	Fe, Mg. per 100 Gm.
Kellogg's "All-Bran"	5.4	15.3
Post's "Whole Bran"	8.8	16.4
Crude bran	9.8	9.5

NUTRITIVE PROPERTIES OF BRAN

Interest in the dietary value of bran dates back at least to the days of Bunge. He showed that bread made from whole wheat contained about twice as much iron as ordinary white bread. These differences have been verified by subsequent analyses by other investigators and have been shown to be due to the presence of wheat embryo and bran in the whole wheat bread. Further evidence of the differential distribution of food sub-

1. Osborne, T. B., and Mendel, L. B.: J. Biol. Chem. **37**: 557 (April) 1919.
2. Cowgill, G. R., and Anderson, W. E.: Laxative Effects of Wheat Bran and "Washed Bran" in Healthy Men, J. A. M. A. **98**: 1866 (May 28) 1932.
3. Whole Bran, J. A. M. A. **100**: 1238 (April 22) 1933. Kellogg's All-Bran, ibid. **104**: 474 (Feb. 9) 1935.
4. Peterson, W. H., and Elvehjem, C. A.: J. Biol. Chem. **78**: 215 (June) 1928.

stances in the wheat grain was afforded by the observations of Bell and Mendel.[5] They dissected wheat by hand and concluded from feeding experiments with mice that the vitamin B content of certain portions of the grain was higher than the concentration in the entire kernel. Later work has verified the observations that bran contains a higher concentration of certain food factors than does the entire grain. The discussion to follow will take up the available information regarding the nutritive value of the various components of bran as far as they have been studied.

(*a*) *Inorganic Salts.*—Crude bran contains a relatively high percentage of ash. This ash is rich in phosphorus, which is present in the bran as phosphate esters of inositol and also as phospholipids and other compounds. Little significance has been attached to this fact, however, because phosphates can be obtained from many common articles of the human diet and there appears to be little possibility of a deficiency of this element occurring in the usual American diet. Moreover, washed bran may contain only one-tenth as much phosphorus as crude bran.[6]

The presence of approximately 3 per cent of sodium chloride in the prepared bran products has already been mentioned. This fact would have significance in the formulation of diets in which low salt intake is desired.

From the nutritional standpoint, the most important inorganic constituent of bran is iron. Attention has already been directed to the striking differences in the iron content of prepared bran products as compared with crude bran. Dr. Mary Swartz Rose, with her collaborators, has studied extensively the question of the utilization of the iron of bran as compared with other foods. Using a sample which contained 10 mg. of iron per hundred grams, Rose and Vahlteich[7] found in assays with rats that the iron of bran was well utilized. Later Rose, Vahlteich and MacLeod[8] showed that the iron of bran was somewhat more effective in the production of hemoglobin in anemic rats than iron-equivalent quantities of egg yolk and of liver. Good results were also obtained when anemic rats were fed whole wheat as compared with the results observed when a solution of the ash of the same amount of wheat was fed.

Subsequent experiments have shown further that the iron of bran is as well utilized as the iron of ferric chloride. In two subjects, both of whom were young women, Vahlteich, Funnell, MacLeod and Rose[9] showed that the iron of bran was as well utilized as the iron of egg yolk. The amounts of egg yolk or of bran consumed by these experimental subjects furnished 3 mg. of iron daily. It required 58 Gm. of egg yolk and 15 Gm. of bran to furnish this amount of iron. It is apparent therefore that the bran used in these experiments contained approximately twice as much iron as the bran used in the earlier experiments with the rats.

(*b*) *Protein.*—The protein content of bran averages about 17 per cent, which is about 50 per cent higher than whole wheat. Although the amino acid makeup of these proteins indicates a good nutritional value, Rubner early showed that the proteins of bran are digested with difficulty. More recently Murphy and Jones[10] studied the nutritive properties of the proteins of wheat bran. They found that young rats grew normally on dietary mixtures in which bran supplied all the protein.

Experiments on man were reported by Holmes[11] in 1919. He studied the protein digestibility of wheat bran when as much as 4 or 5 ounces was eaten. The coefficient of protein digestibility was low, being only 37 per cent when fine bran was eaten and 36 per cent when coarse bran was substituted. His experiments have been criticized because of the large amounts of bran consumed and also because the diets contained relatively small amounts of total protein. Funnell, Vahlteich, MacLeod and Rose[12] calculated from their experiments that the protein of bran was utilized by their subjects (young women) to the extent of about 50 per cent. It must be concluded that the proteins of bran are poorly utilized. Moreover, in the amounts that might ordinarily be consumed it is apparent that the proteins of bran can contribute but little to the daily protein requirements of man.

(*c*) *Vitamins.*—The only vitamin known to occur to an appreciable extent in wheat bran is the vitamin B complex, and in particular vitamin B_1. As already described, Bell and Mendel[5] showed that the vitamin B complex was differentially distributed in the wheat grain. In 1927 Plimmer, Rosedale, Raymond and Lowndes[13] found that bran was about one fifth as rich in vitamin B as wheat germ. In 1932 Rose and her collaborators[14] reported that a sample of commercial bran contained somewhat less vitamin B than an equal weight of whole wheat. They concluded: "One ounce of whole wheat bread will furnsh 63 vitamin units and 100 calories; one ounce of bran suitably prepared for human use such as has been used in this investigation will furnish at least 45 vitamin B units, but not more than 30 calories." The vitamin unit referred to was that of Chase and Sherman; in terms of international units of vitamin B_1, 1 ounce of the bran product investigated contains about 23 units. Thus it is apparent that although wheat bran contains vitamin B_1, it is not as good a source of this factor as whole wheat, wheat germ and many other food products.

(*d*) *Carbohydrates, Including Crude Fiber.*—The most publicized components of bran are the carbohydrates, particularly the indigestible carbohydrates referred to as crude fiber. In the dried commercial product reported by Osborne and Mendel, there were approximately 17 per cent starch and dextrins, 27 per cent pentosans and 9 per cent fiber. As pointed out by Rose and her collaborators,[15] true values for the carbohydrates are probably slightly higher than the figures reported.

About one third of the total carbohydrate, comprising the starch and dextrin, is digestible and therefore serves as a source of energy. The rôle of pentosans in nutrition has been reviewed by McCance and Lawrence.[16] These carbohydrates, chiefly arabans and

5. Bell, M., and Mendel, L. B.: Am. J. Physiol. **62**: 145 (Sept.) 1922.
6. Falcon-Lesses, M.: J. Nutrition **2**: 295 (Jan.) 1930.
7. Rose, Mary Swartz, and Vahlteich, Ella McCollum: J. Biol. Chem. **96**: 593 (June) 1932.
8. Rose, Mary Swartz; Vahlteich, Ella McCollum, and MacLeod, Grace: J. Biol. Chem. **104**: 217 (Feb.) 1934.
9. Vahlteich, Ella McCollum; Funnell, Esther H.; MacLeod, Grace, and Rose, Mary Swartz: J. Am. Dietet. A. **11**: 331 (Nov.) 1935.
10. Murphy, J. C., and Jones, D. B.: J. Biol. Chem. **69**: 85 (July) 1926.
11. Holmes, quoted by Funnell, Vahlteich, Morris, MacLeod and Rose.[12]
12. Funnell, Esther H.; Vahlteich, Ella McCollum; Morris, Sadio O.; MacLeod, Grace, and Rose, Mary Swartz; J. Nutrition **11**: 37 (Jan.) 1936.
13. Plimmer, R. H. A.; Rosedale, J. L.; Raymond, W. H., and Lowndes, John: Biochem. J. **21**: 1147, 1927.
14. Rose, Mary Swartz; Vahlteich, Ella McCollum; Funnell, Esther H., and MacLeod, Grace: J. Am. Dietet. A. **7**: 369 (March) 1932.
15. Rose, Mary Swartz; MacLeod, Grace; Vahlteich, Ella McCollum; Funnell, Esther H., and Newton, Catherine L.: J. Am. Dietet. A. **8**: 133 (July) 1932.
16. McCance, R. A., and Lawrence, R. D.: The Carbohydrate Content of Foods, M. Res. Council, London, 1929.

xylans, are of negligible food value because no enzymes of the alimentary tract are capable of hydrolyzing them. The same is true of cellulose, which makes up a considerable portion of the material called "crude fiber." However, bacterial action, which may convert considerable of the pentosans into volatile fatty acids, has less effect on cellulose. The latter when fed is recoverable to a large extent in the feces. Bran thus contributes bulk to the diet, and it was early recognized as having a laxative effect because of this fact. While the "bulk" is made up chiefly of indigestible carbohydrates, it is well known that substances other than "crude fiber" may contribute to the residues found in the stool.

LAXATIVE EFFECTS OF BRAN

The laxative effects of bran have been studied by several investigators. Only experiments on persons will be considered in this report. Cowgill and Anderson [2] compared the laxative effects of bran and washed bran in healthy young men. They found no differences in the two products when tested in fiber-equivalent quantities. The authors therefore concluded that the laxative effect of bran can be attributed to its fiber content rather than to substances, such as phytin or salts, which may be leached out in the manufacturing process. They found as a result of their feeding experiments that the ingestion of bran leads to an increase in the weight of the stools. When the diet was selected so as to be low in crude fiber content, the addition of bran resulted in an increased number of bowel movements daily. These authors describe as a condition of marked constipation one in which an average of about six bowel movements a week was produced. According to the review by Alvarez,[17] this statement might be questioned.

Cowgill and Anderson analyzed representative items of the control diets ingested by their subjects and compared the results of the fiber intake with the fiber content of the stools produced. It was shown that approximately 60 to 65 per cent of the crude fiber of mixed diets may disappear on passage through the alimentary tract. When bran was added, the weight of fiber that disappeared amounted to only 44 to 51 per cent. It is thus evident that the fiber of bran is more resistant to decomposition by bacteria in the intestinal tract than is the crude fiber of ordinary foods. It was concluded that normal men exhibit "satisfactory laxation" when their diet contains about 90 mg. of fiber per kilogram of body weight daily. This amounts to a little over 6 Gm. of fiber a day for an average sized man.

Later Cowgill and Sullivan [18] reported further investigations on the use of wheat bran as a laxative in six men who were troubled with constipation. It was shown that in all but one of these cases the addition of bran was efficacious in overcoming the complaint. Fruits and vegetables as sources of bulk were found satisfactory in two subjects. Another subject, however, apparently presented the picture of "irritable colon." He was unable to tolerate coarse vegetables or bran but was successfully treated with agar. The authors pointed out that diets of common foods containing sufficient fiber to permit satisfactory movements in healthy persons may not do so in subjects troubled with constipation. They attributed this to the greater loss of fiber in traversing the alimentary tract of constipated subjects as compared to normal persons.

17. Alvarez, W. C.: Physiol. Rev. **4**: 352 (July) 1924.
18. Cowgill, G. R., and Sullivan, A. J.: Further Studies on the Use of Wheat Bran as a Laxative, J. A. M. A. **100**: 795 (March 18) 1933.

Experiments on men are not entirely conclusive as far as constipation studies are concerned. It is well known that women are more prone to become constipated than are men. It is interesting, therefore, to note that Rose and her co-workers [9] have studied the influence of bran on the alimentary tract of healthy women. As a result of these studies it was shown that the addition of bran to a controlled diet produced marked increases in the total weight and dry weight of the stools.

In a recent paper by Parsons [19] it is pointed out that the problem of fecal elimination is largely an individual one which is affected by many factors in addition to the amount of fiber in the diet. It is difficult to evaluate the results of her experiments as compared with other reports in the literature. The divergence of results indicates, however, the importance which subjective impressions may play in such experiments with persons.

It seems reasonable to conclude from the evidence available that the weight of the fecal material and the number of bowel movements daily are dependent largely on the bulk in the diet, and that in normal men and women and in some constipated subjects, both may be increased by the ingestion of suitable amounts of bran. It also appears to be demonstrated that the fiber of bran is more resistant to decomposition in the alimentary tract than the fiber of many ordinary foods. The number of daily bowel movements that can be considered normal, however, is still open for further investigation. There is evidence also that some foods, such as prunes and fruit juices, may exert an effect which cannot be attributed to fiber or bulk. It may also be pointed out that other components of the usual diet, such as carbohydrates and fats, may exert an effect on what Cowgill and Anderson have called "laxation." Finally it may be noted that there are no reports in the literature of controlled dietary studies showing the relation of bulk to constipation in children.

THE INFLUENCE OF BULK ON PROTEIN UTILIZATION AND MINERAL RETENTION

Indigestible carbohydrates in bran must be considered in relation to their effect on the digestibility of other proteins and on the retention of minerals. Mendel and Fine, for example, showed with dogs that the addition to the diet of indigestible material such as agar or bone ash resulted in an increase in the fecal nitrogen. This effect has been shown by others to occur in persons also. In explanation it has been suggested that the presence of bulk may retard proteolytic digestion; a greater amount of metabolic nitrogen from digestion juices, and so on, which escape reabsorption, is produced; the intestinal contents are propelled more rapidly and hence not as completely absorbed. Whatever the reason, it appears that the effect produced by moderate amounts of fiber on protein digestion, while definite, is slight.[12] With abnormally high amounts of roughage, such as might be found in certain Chinese diets, Adolph and Wu [20] observed a definite lowering of protein digestibility.

Whitacre, Willard and Blunt [21] found that the addition of fiber in the form of vegetables had no effect on the utilization of dietary fat. Morgan [22] studied the

19. Parsons, Lucy W.: J. Am. Dietet. A. **12**: 11 (May) 1936.
20. Adolph, W. H., and Wu, Mao-Yi: J. Nutrition **7**: 381 (April 10) 1934.
21. Whitacre, J.; Willard, A., and Blunt, K.: J. Nutrition **2**: 187 (Nov.) 1929.
22. Morgan, Harriet: The Laxative Effect of a Regenerated Cellulose in the Diet: Its Influence on Mineral Retention, J. A. M. A. **102**: 995 (March 31) 1934.

effect of the ingestion of moderate amounts of a cellulose preparation on young women. She found a slightly increased excretion of fecal nitrogen and a definite increase in the excretion of phosphorus, calcium and fecal ash. She questions the wisdom of giving a high roughage diet to children or to older persons under conditions of a marginal intake of calcium.

DISADVANTAGES FROM THE USE OF BRAN

In addition to the effect of bran on calcium excretion, there are other possible disadvantages to its use which demand thoughtful consideration. To many individuals bran is irritating to the mucous lining of the intestinal tract. It is self evident that bran or other rough foods may do serious injury if included in the diet of patients who recently have undergone operation of the stomach or intestine or who suffer with ulcer, carcinoma or other organic disorders of the gastro-intestinal tract. Patients with such conditions occasionally develop constipation. Also at times patients with ulcerative colitis of amebic or bacterial origin develop constipation. If under any of these circumstances bran is resorted to as a means of relieving the constipation, the previously diseased tissue will be irritated with results that may be disastrous.

It generally is less well appreciated that the constipation of many otherwise healthy individuals results from spasticity of the colon and under these circumstances that bland diets are more effective in controlling the constipation than is any rough, mechanically irritating food like bran. In such cases bran may so intensify the spasticity that obstruction necessitating mechanical or even surgical removal may result from its use.[23]

It is the experience of many physicians that otherwise normal persons who suffer from constipation due solely to inadequate bulkiness of their diets will develop irritable colons if bran is taken in excessive doses for a short time or in ordinary doses continuously for longer times.[24] Vague abdominal pains occur, associated with bloating, belching and excessive flatus; these symptoms promptly disappear when the ingestion of bran is discontinued.

Danger from the use of bran is greatest when constipated individuals eat bran, and, not obtaining relief with small portions, take larger quantities of this rough, mechanically irritating food. The indiscriminate use of bran without the supervision of physicians therefore is undesirable. While many constipated persons without any digestive disorders may be benefited by the addition to their diets of bran in doses that are not excessive, alternating the use of bran with agar and other allied products or the provision of diets containing an adequate amount of residue less coarse than bran is considered to be a more desirable therapeutic procedure.

GENERAL DECISION ON ALLOWABLE CLAIMS FOR WHEAT BRAN

On the basis of the evidence reviewed in the foregoing report, the Council on Foods has considered the place of wheat bran in the human diet and has adopted the following general decision:

1. Bran may be useful as a source of bulk in the diet. The position of the Council in regard to "Constipation Statements in Lay Advertising for Roughage Foods and Bran" (THE JOURNAL, Nov. 5, 1932, p. 1605) is reaffirmed. Any reference in labels or advertising directed to the public regarding the content of bulk or crude fiber cannot be permitted unless there is reproduced the complete statement in the Committee Decision referred to, regarding a permissible claim for a roughage food. This statement is reproduced as follows:

> Constipation due to insufficient roughage in the diet should yield to . . . eaten regularly. A competent physician should be consulted for cases not corrected in this simple manner.

It is not permissible to advertise the use of bran in the treatment of constipation "due to insufficient bulk." This statement by itself encourages self treatment, which may cause harm in those persons for whom bran is contraindicated.

2. The iron content of untreated bran is high. Special claims for bran as a source of iron in the diet cannot be recognized, however, until definite evidence is obtained and accepted by the Council to show that the iron of untreated bran is available to the human body and, in the amounts which might ordinarily be ingested, contributes an appreciable portion of the daily requirements.

If iron salts should be added in the preparation of bran for human consumption, the presence of added iron should be declared on the label, in accordance with present regulations of the Council requiring a complete list of ingredients and quantities thereof entering into the product in the case of food mixtures or compounds.

3. The amount of vitamin B_1 in bran is insufficient to permit any special claims therefor.

23. Davis, M. B.: Intestinal Obstruction from Eating Bran, J. A. M. A. **97**: 24 (July 4) 1931.
24. Alvarez, W. C.: Minnesota Med. **14**: 296 (April) 1931.

ACCEPTED FOODS

THE FOLLOWING PRODUCTS HAVE BEEN ACCEPTED BY THE COUNCIL ON FOODS OF THE AMERICAN MEDICAL ASSOCIATION FOLLOWING ANY NECESSARY CORRECTIONS OF THE LABELS AND ADVERTISING TO CONFORM TO THE RULES AND REGULATIONS. THESE PRODUCTS ARE APPROVED FOR ADVERTISING IN THE PUBLICATIONS OF THE AMERICAN MEDICAL ASSOCIATION, AND FOR GENERAL PROMULGATION TO THE PUBLIC. THEY WILL BE INCLUDED IN THE BOOK OF ACCEPTED FOODS TO BE PUBLISHED BY THE AMERICAN MEDICAL ASSOCIATION.

FRANKLIN C. BING, Secretary.

ADVERTISING LEAFLET "MILK FOR ALL"

Sponsor.—Evaporated Milk Association, Chicago.

A leaflet prepared for distribution by welfare agencies. It is proposed to print part of the run of pamphlets in Italian. The leaflet contains a statement of the nutritive value of evaporated milk, suggested food selections in planning low cost meals, and evaporated milk recipes.

DR. PHILLIPS PURE FLORIDA GRAPEFRUIT AND ORANGE JUICE
(WITH ADDED CANE SUGAR)

Manufacture.—Dr. P. Phillips Company, Doctor Phillips, Fla.

Description.—Canned Florida grapefruit juice (60 per cent) and canned orange juice (40 per cent) sweetened with sucrose and retaining in large measure the original natural vitamin content. The same as Dr. P. Phillips Pure Florida Orange Juice (With Added Cane Sugar) (THE JOURNAL, Dec. 3, 1932, p. 1948) and Dr. P. Phillips Pure Florida Grapefruit Juice (With Added Cane Sugar) (THE JOURNAL, Jan. 7, 1933, p. 43).

GOLD-PAK BRAND GRAPEFRUIT JUICE
(SUGAR ADDED)

Manufacturer.—Ariz-Sweet Grapefruit Growers, Ltd., Peoria, Ariz.

Description.—Canned Arizona grapefruit juice, with added sucrose, retaining in high degree the original vitamin C content. Same as Ariz-Sweet Brand Grapefruit Juice (Sugar Added) (THE JOURNAL, July 25, 1936, p. 283).

Claims of Manufacturer.—Intended for all dietary and table uses of grapefruit juices. Practically equivalent to fresh juice in vitamin C.

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SATURDAY, SEPTEMBER 12, 1936

"SUBENON" FOR ARTHRITIS AND THE AMERICAN CHEMICAL SOCIETY

For several years the annual sessions of the American Chemical Society have been accompanied by extraordinary publicity in the lay press concerning new chemical discoveries applicable in the field of medicine and particularly for the treatment of disease. Each year has seen several disappointments associated with the subsequent fate of the widely heralded remedies. Occasionally, of course, some of the preparations thus announced have found a certain field of usefulness. The medical profession has thus far refrained from criticizing this interference in its field. This year, however, even before the opening of the annual session of the American Chemical Society, newspapers throughout the United States carried a story, emanating apparently from the publicity department of the American Chemical Society, indicating that a new specific had been developed for the treatment of rheumatism and arthritis. Some press associations which have been consulting the headquarters of the American Medical Association relative to press items in the field of medicine immediately made contact with authorities in the headquarters office to determine whether or not these stories were well founded. The item submitted to the press stated that "a compound which curbs arthritis, economically the most devastating of all chronic diseases, was reported by Dr. Herman Seydel (President Seydel Chemical Co., Jersey City, N. J.)." It was said that "the new compound, involving the medicinal application of benzoates, has proved effective in clinical tests covering two years at the Jersey City Medical Centre." Furthermore, Herman Seydel, Ph.D., reported that "in this calcium double salt of benzyl succinic and benzoic acids we offer the solution of an age-old problem. It remains for the medical profession to adopt it and employ it properly." Thus the speaker to appear before the American Chemical Society put the medical profession of this country squarely "on the spot" with a demand that it use his proprietary remedy. The item was, of course, much more extensive, proceeding finally to the rather humorous point at which "Dr." Seydel pointed out that his remedy worked "by treatment designed to better the body humors." He explained "humors" by pointing out that "some modernists in medical science substitute for the 'humors' the 'bacterial flora of the intestines.'" If this is science, Heaven help the scientists!

The real explanation of the usefulness of his product seemed to be, according to "Dr." Seydel, "the rôle played by benzoic compounds in the detoxication processes of the body . . . since it successfully removes waste matters from the body humors and is itself eliminated as either hippuric acid or a hippuric acid derivative. Hence benzoic compounds should have a decided advantage over other compounds in the treatment of conditions that arise from, or are controlled by, the gastro-intestinal tract." The secret behind this is, of course, the fact that the Seydel Chemical Company is a manufacturing organization which specializes in the manufacture of "benzoic compounds."

Naturally this extraordinary announcement in the press stimulated a flood of inquiries addressed to the American Medical Association, the American Chemical Society and "Dr." Seydel personally as to where this new specific might be secured. At least one inquirer was told over the telephone that the product could be secured by calling for it under its proprietary name—Subenon [1]—at any of the establishments of a widely known chain of drug stores.

In his statements "Dr." Seydel mentioned a favorable experience with the treatment at the New York Postgraduate Hospital. The superintendent of that institution, W. B. Talbot, telegraphs:

> We protest reference to New York Postgraduate Hospital in newspaper report of Herman Seydel. Stop. We used experimentally his product subenon but found it useless in arthritis. Stop. No favorable reports given out from this hospital about subenon.

Had the publicity associated with "Dr." Seydel's exploitation of his product gone directly from the Seydel Manufacturing Company to any of the better press associations or newspapers of the United States, it would promptly have found itself—as merely a sheet of advertising material seeking for free publicity—in the editorial wastebasket. As it came to newspapers with the sponsorship of the American Chemical Society, a well known organization presumed to be composed of scientific men subject to the usual ethics which control scientific workers, press associations and newspapers cannot be condemned if they failed to recognize the definitely commercial background and effect of this item. Neither can thousands of unfortunate sufferers from arthritis be condemned if in response to this

1. Subenon is claimed to be a calcium double salt of benzyl succinic and benzoic acids. In November 1935 Seydel declared his intention to submit the product to the Council on Pharmacy and Chemistry. The product was already commercially available at that time. It is not, therefore, either new or of established value—facts which the American Chemical Society might have taken into consideration before permitting widespread exploitation under its sponsorship. The product has not yet been submitted to the Council.

item they demand of their physicians that they be given opportunity to test this unestablished drug. But in these circumstances the sufferer from arthritis is the guinea-pig and "Dr." Seydel and his company are the financial gainers with the American Chemical Society as their unpaid agent.

When the item appeared in the newspapers a telegram was sent by the Director of the Division of Drugs, Foods and Physical Therapy of the American Medical Association and by the Editor of THE JOURNAL to the president of the American Chemical Society pointing out the circumstances involved in this case and protesting the use of the American Chemical Society for aiding the premature and unethical exploitation of this proprietary. It was suggested that proper officials remove the paper by "Dr." Seydel from the program of the American Chemical Society. This, as we go to press, the president of that society has refused to do. The American Chemical Society cannot dodge its responsibility in this case. It is neither within its province nor within its competence to give critical judgment on the treatment of disease. If it wishes to maintain the respect of the medical profession and the public, the American Chemical Society cannot permit itself to be used as an agent for unestablished proprietary remedies in the exploitation of the sick.

ACNE AND CARBOHYDRATES

Patients with acne vulgaris, it has long been thought, are usually intolerant to carbohydrates. However, much recent evidence does not support such a view. Whereas earlier observations indicated that in many cases of acne borderline hyperglycemia is present, the majority of the more recent reports show that the sugar content of the blood of these patients does not differ significantly from that of normal subjects and that they show no evidence of a lack of tolerance to dextrose. In fact, the observation that the incidence of skin disorders was considerably less in a large series of diabetic patients than in a similar series of normal subjects led one investigator[1] to treat patients with furunculosis with a high carbohydrate diet and dextrose injected intravenously. The results obtained were uniformly favorable.

The foregoing alleged beneficial effect of carbohydrate therapy on furunculosis suggests that this regimen might prove of value also in the treatment of the more pronounced and pustular types of acne. A study of this question has been recently reported.[2] Ten patients who had been troubled with the severe and predominantly pustular form of acne for from six months to ten years were hospitalized and given a high carbohydrate diet, containing 5 Gm. of carbohydrate, 1 Gm. of protein and 1 Gm. of fat per kilogram of body weight. In addition, 1,000 cc. of a 5 per cent solution of dextrose in physiologic solution of sodium chloride was administered intravenously each day. This treatment was continued for the two weeks the patients remained in the hospital and the high carbohydrate diet was continued after dismissal during follow-up periods varying from six to fourteen months. Dextrose tolerance tests were made on each patient at the beginning of the period of treatment and all curves obtained were normal with the exception of two, which were of the flat type. Sugar was not found in the urine at any time during the two weeks period of intensive carbohydrate therapy and at the end of the period the sugar content of the blood after fasting was normal in all cases.

These data obviously give no indication of an intolerance to carbohydrate. The clinical results are interesting. In five of the ten patients there was definite improvement during the two weeks period, and this continued during the follow-up period until the skin cleared. Two patients showed questionable improvement, and the condition of three remained unchanged. In no instance did a patient become worse as a result of treatment. Three of the patients showed transient outbreaks of acne during the follow-up period. In one instance this was associated with menstruation, and in another with the eating of tomatoes. Thus, further evidence is presented in support of the contention that patients with acne do not show an intolerance to carbohydrate and, indeed, that a carbohydrate-rich diet is frequently of value in the treatment of this disease. Possibly other types of foods, or perhaps specific foods, may be involved as etiologic agents in acne rather than the long suspected carbohydrates.

1. Tauber, E. B.: Hyperglycemia in Diseases of the Skin, Arch. Dermat. & Syph. **27**: 198 (Feb.) 1933.
2. Crawford, G. M., and Swartz, J. H.: Acne and the Carbohydrates, Arch. Dermat. & Syph. **33**: 1035 (June) 1936.

INDEX CATALOGUE OF THE LIBRARY OF THE SURGEON GENERAL'S OFFICE

Under date of May 4, 1936, Major Edgar Erskine Hume, librarian of the Army Medical Library, announced to the Surgeon General the completion of the first volume of the fourth series of the *Index Catalogue* of the Library. Volume 10 of the third series appeared in 1932, and publication has been suspended in the intervening time. The history of the publication is briefly reviewed in the introduction to the new volume of the new series. When it first appeared, the *Index Catalogue* was unique as the only attempt to index the important medical literature of the world. As the Army Medical Library received a greater number of periodicals and more books, pamphlets and other medical publications than any other medical library capable of issuing such a publication, the *Index Catalogue* most nearly approximated a complete catalogue of medical literature.

The *Index Medicus* was founded in 1879 and, as our readers know, was subsequently taken over by the American Medical Association and is now issued as

the *Quarterly Cumulative Index Medicus.* To some extent there is duplication of the work necessary for preparing the *Quarterly Cumulative Index Medicus* and the *Index Catalogue,* though the claim is made that the *Index Catalogue* is far more comprehensive than the *Index Medicus.* Incidentally, the cost of issuing 1,000 copies of one volume of the *Index Catalogue* is estimated to be $33,000, or $33 per individual volume.

In presenting this new volume, certain changes have been made which are improvements in presentation of the material. For example, volume numbers are in Arabic numerals instead of Roman, unnecessary punctuation has been avoided, and there has been a shortening of inclusive pagination. The same classification is followed as has been used since the beginning of the first series, although of course new knowledge has made necessary new subheadings. Nomenclature has been improved by avoiding eponyms, although in some instances, as in Addison's disease, this has not been possible. It has been estimated that the changes are sufficient to save approximately one fifth of the available space. The Army Medical Library receives 1,509 periodicals; the *Quarterly Cumulative Index Medicus* receives some 1,400. Users of the two indexes will readily be able to determine for themselves which method of indexing has the greater facility. By its very nature the *Index Catalogue* is invariably far behind the *Quarterly Cumulative Index Medicus* in making available references to current medical periodical literature. However, the *Index Catalogue* makes available in one volume all the material up to the time of its publication.

Users of the *Index Catalogue* should be under no illusion as to the extent of material covered. It is not possible, and certainly not worth while, to attempt to index every article appearing in every one of the 1,509 periodicals received by the Army Medical Library, and it is quite obvious by reference to the *Index* that the editors have not attempted a complete indexing of this material. This is the system that has been followed by the *Index Catalogue* and the *Quarterly Cumulative Index Medicus* as well as by the *Index Medicus* from the first. The compilers of the *Index Catalogue* are to be congratulated on their editorial judgment.

Notwithstanding the minor criticisms here offered, the *Index Catalogue* is one of the most useful works of reference available in the field of medical bibliography. The economically minded may estimate that the completion of the alphabet in this manner will require anywhere from ten to twenty years and will cost approximately $400,000. During the same period the *Quarterly Cumulative Index Medicus* will also be making available an index of the periodical literature of medicine at a cost of approximately $40,000 a year. There will be considerable duplication of work which might in some way be avoided. It remains for medical leadership, both governmental and extra-governmental, to work out some plan whereby this may be done.

Current Comment

CAUSES OF SICKNESS AND DEATH

It is not as easy to determine the really important causes of sickness and death at present as appears on first glance. There are many approaches to the problem, but the relative importance attached to a particular disease depends largely on the source of information. Britten [1] has recently reviewed some of the angles of approach and indicated the various pictures that are yielded. Thus, in one table, in which the mortality rate for the whole United States in 1933 was listed only by primary causes, it was obvious that some of the causes, notably influenza and pneumonia, diarrhea and enteritis, and diseases of the heart, would have been increased if contributory causes also had been listed. As compared, however, with morbidity statistics, the mortality rates and their interpretation are relatively simple. Diseases that appear at the top of any list based on records of illness depend almost wholly on the method of collection. In a morbidity table based on reported incidence of those diseases which are by law notifiable in various states and are hence all communicable diseases, largely epidemic and principally of children, chronic disease is virtually omitted and many mild contagious cases are not included. In judging the importance of a disease it is necessary to consider the fatality as well as the incidence. When based on reports to the Public Health Service and the Cleveland study, rabies and tetanus head the list for numbers of deaths per hundred cases. Neither of these diseases is included in the table of the first seventeen important reportable diseases of 1933. Periodic canvasses (about every three months) were made for a year in 9,000 families in eighteen states. The four leading diseases, as based on annual incidence per thousand, were colds and bronchitis, influenza and pneumonia, tonsillitis and gastritis, as compared with measles, influenza, syphilis and scarlet fever in the group of important recorded diseases in 1933. Reports of sick benefit associations in industry give still another image, since such reports usually cover disabling illness lasting eight days or longer. In such a study influenza and pneumonia come first, followed by rheumatism, tonsillitis and appendicitis. The prevalence of diseases at any one time must be sharply distinguished from the incidence of illness. Thus, chronic conditions such as rheumatism and hernia may be important with respect to the ill health of the population but not show up in any great number in a study of cases of illness, because they are overshadowed by acute recurring conditions. Diseases that are increasing in frequency merit special attention. Data are not available, however, to cover this point except from the mortality rates, which are unsatisfactory because of changes in case fatality of specific diseases. None of the approaches to the problem seem to throw light on the important aspect of the protection of the worker against disease arising out of his occupation. When Britten attempted to bring the various approaches into a more or less unified whole, the tentative conclusion was drawn that the principal diseases appear to be (1)

1. Britten, R. H.: Important Causes of Sickness and Death, Pub. Health Rep. **51**: 947 (July 17) 1936.

influenza and pneumonia, tuberculosis, heart disease; (2) cancer, rheumatism, dementia praecox; (3) syphilis, appendicitis, mental defect and results of childbirth. Since the importance of having accurate knowledge of the frequency and severity of different diseases is obvious, it is strongly to be hoped not only that accuracy and increase in the factual data will continue to improve but also that the statistical methods of reaching conclusions may be developed to give reasonably accurate information.

Medical Economics

MUTUAL TRUST BETWEEN PHYSICIAN AND PATIENT IN MEDICINE

The patient who distrusts his physician will not and cannot tell him the whole truth and nothing but the truth. The patient who subconsciously doubts his physician may censor facts at the expense of his recovery. The physician who lacks the confidence of a patient will try to fill the gaps in his knowledge with guesses and laboratory gadgets or else take refuge in a "look and a bottle." This has happened whenever government, contracts or other arrangements in the distribution of medical service have disturbed or destroyed continuous, confidential, personal relations between patient and physician. In some systems of insurance and workmen's compensation, medical associations—usually after years of struggle—have restored some sort of freedom of choice and mutual confidence. The result has always been an improvement in the service. Is it necessary to introduce systems that destroy these essential features of good medical service?

The medical profession has always held to the principle that change in medical service must have the single objective of better care for the health of those who need such service. Physicians are not interested in arguments for change based on the profits that might accrue to financial and industrial interests, on political expediency or even on their own apparent financial advantage, if the service is to suffer thereby.

Through the experience of centuries in many different forms of society the medical profession has learned that certain elements are essential to good medical service. One of these elements is mutual confidence, which springs from the freely chosen association of physician and patient. Compulsory association sows distrust.

Patients, not diseases, are the objects of medical treatment. Treatment rests on a meeting of two personalities, the patient and his physician. Successful, helpful relations must be between these two personalities and not between an institution, insurance system, laboratory or industry and a personality.

The patient who suspects that interests hostile to him may be influencing the physician will consciously or unconsciously describe his symptoms with a view to meeting the supposed or real antagonism. Modern psychiatry confirms this conclusion and emphasizes its importance. Laboratory technic has not displaced the necessity of confidence in diagnosis, nor has elaborate equipment made it unnecessary in treatment.

Free choice is an essential element in furthering medical progress. It is the most effective method yet discovered to insure the "survival of the fittest" in the medical profession. The selection is not always perfect, but it is more fair and impartial than selection influenced by financial or political considerations. Coercion of the decision distorts and corrupts the verdict of professional success. Professional progress has always rested on high standards of admission and then on free competition, within the limits of approved ethical regulations.

The individual choice may not always be wise, but a compulsory choice hampers the success of the best physician, while a free choice helps him to give the best service of which he is capable. Potential power of choice tends to hold all medical service to a high plane.

Economic compulsion of choice has the same evil effects that have always followed advertising and solicitation by the physician. In practice, compulsory choice is almost always accompanied by advertising and solicitation, and the choice is often made by some impersonal corporation or institution that is concerned more with other interests than with the health of the patient. This impersonal body selects a physician not for an individual patient but for a group.

Group selection usually involves mass treatment. This policy is being urged on the medical profession just as analogous fields are rejecting it. A generation ago crime and insanity were treated almost exclusively by mass confinement in asylums and prisons, mass education was glorified and mass treatment of poverty by alms and in poorhouses generally approved. Progress in criminology, psychiatry, education and social work has been measured largely by the extent to which individual personal relations have supplanted mass measures.

Nowhere else is this personal relation such a fundamental element of successful treatment as in medicine. Progress toward better treatment, unless all the teachings of the past are false, will be found in the introduction of methods making the choice of physician more intelligent and the personal relations more permanent and confidential.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION AND PUBLIC HEALTH.)

ARKANSAS

Society News.—At a meeting of the Craighead-Poinsett County Medical Society in Trumann, July 22, speakers were Drs. Isaac G. Duncan, on diagnosis and treatment of most common kidney infections; John A. Hughes, headache; Matthew W. Searight, gynecology; Edward G. Campbell, peptic ulcer, and John L. McGehee, pilonidal sinus; all are from Memphis.

CALIFORNIA

University News.—The University of California recently announced a gift of $2,000 from Mrs. Paul Wegefort, Coronado, for support of studies on the common cold.——In a student registration of 14,418 at the University of California, Berkeley, only three students died from natural causes during the academic year 1935-1936. The total student mortality was eight deaths. Of the entire student population, 11,997 were given some treatment in the Cowell Memorial Hospital.

FLORIDA

Committee Enlarged.—The committee on maternal welfare of the Florida Medical Association has changed its name to the committee on maternal welfare and child health and added the following physicians as members: Drs. Luther W. Holloway, Jacksonville; William W. McKibben, Miami; Councill C. Rudolph, St. Petersburg, and William E. Sinclair, Orlando.

GEORGIA

Increase in Venereal Disease.—A total of 12,771 cases of venereal disease was reported to the state department of health in 1935, which is 2,161 more cases than reported for a group of other diseases including malaria, tuberculosis, whooping cough, diphtheria, typhoid and pellagra. For this group of diseases, a total of 10,610 was reported. The number of cases of syphilis was 7,358, while those of gonorrhea totaled 5,413. The rate for syphilis per hundred thousand of population was 242.8.

ILLINOIS

Maternal Welfare Program.—The state department of public welfare has announced a plan to promote better hygienic care for prospective mothers and infants. Efforts will at first be concentrated in ten counties of the state showing the highest maternal and infant mortality rates and for which statistical material has been assembled for eight years: Richland, Pulaski, Alexander, Coles, Crawford, Montgomery, Morgan, Saline, Boone and Effingham.

Chicago

Professor Edwin O. Jordan Dies.—Edwin O. Jordan, Ph.D., emeritus professor of bacteriology, University of Chicago, died at the Central Maine General Hospital, Lewiston,

Maine, September 2, from cerebral thrombosis, aged 70. Dr. Jordan was a native of Thomaston, Maine. He received his degree of bachelor of science from the Massachusetts Institute of Technology in 1888, his degree of doctor of philosophy from Clark University in 1892 and an honorary degree of doctor of science from the University of Cincinnati in 1920. From 1888 to 1890 Dr. Jordan was chief assistant biologist to the Massachusetts Board of Health; lecturer on biology, Massachusetts Institute of Technology, 1889-1890; fellow in morphology, Clark University, 1890-1892. In the latter year he became affiliated with the University of Chicago as associate in anatomy, holding successively the titles instructor, assistant professor of bacteriology, associate professor and professor. In 1914, when the department of hygiene and bacteriology was formed, Dr. Jordan was appointed chairman. Although officially retired from the university in 1933, Dr. Jordan had been offering graduate courses and conducting research in the department of hygiene and bacteriology. He was at one time chief of the serum division of the Memorial Institute for Infectious Diseases, now known as the John McCormick Institute of Infectious Diseases, of which he was a trustee, editor of the *Journal of Preventive Medicine* until its discontinuance in 1932, and joint editor of the *Journal of Infectious Diseases*. The Andrew McLeish Distinguished Professorship at the University of Chicago was awarded to him in 1932. He was president of the Society of American Bacteriologists in 1905, of the Chicago Pathological Society in 1906, of the American Epidemiological Society from 1929 to 1931, and of the Institute of Medicine of Chicago in 1932. Other societies of which he was a member include the American Public Health Association, American Association of Pathologists and Bacteriologists, American Physiological Society, Society of Experimental Biology, American Society of Naturalists, American School Hygiene Association and American Water Works Association. He was a member of the International Health Board of the Rockefeller Foundation from 1920 to 1926 and a member of the board of scientific directors, International Health Division of the Foundation. He was also a member of the medical fellowship board of the National Research Council and a fellow of the American Association for the Advancement of Science. He was elected a member of the Council on Foods of the American Medical Association in 1933 and of the National Academy of Sciences in the spring of 1936. He was awarded the Sedgwick Memorial Medal of the American Public Health Association in 1934. This medal was named for W. T. Sedgwick, a biography of whom was written jointly by Dr. Jordan, Dr. George H. Whipple and Charles-Edward A. Winslow, Dr.P.H. An outstanding bacteriologist, Dr. Jordan has contributed extensively to the literature of his field, one of his best known volumes being "General Bacteriology," which in 1931 underwent its tenth revision.

INDIANA

New Chairman of Department of Gynecology.—Dr. Carl Habich, Indianapolis, has been appointed chairman of the department of gynecology at the Indiana University School of Medicine, and Dr. Jackson T. Witherspoon has been placed in charge of research in the department. A graduate of the school of medicine, Dr. Habich has been a member of the staff of the department of gynecology for about twenty years. Dr. Witherspoon was formerly instructor in clinical gynecology at Tulane University of Louisiana School of Medicine, New Orleans.

State Medical Meeting in South Bend.—The Indiana State Medical Association will convene at the Jefferson Plaza, South Bend, October 6-8, for its annual session. Speakers will include the following:

Dr. Byrl R. Kirklin, Rochester, Minn., Roentgenologic Features of Acute Pulmonary Diseases.
Dr. Lincoln F. Sise, Boston, Present-Day Anesthesia.
Dr. Russell L. Cecil, New York, Early Diagnosis and Treatment of Pneumonia.
Dr. Frederick A. Coller, Ann Arbor, Water Metabolism.
Dr. Fred L. Adair, Chicago, The Cervix Uteri.
Dr. Lee Wallace Dean, St. Louis, Nasal Sinus Disease of Infants and Young Children.
Dr. Francis E. Senear, Chicago, Early Diagnosis of Syphilis and Its Treatment.
Dr. Elmer L. Sevringhaus, Madison, Wis., Endocrine Therapy in General Practice.
Dr. John A. Toomey, Cleveland, A Critical Evaluation of Recent Advances in the Prophylaxis and Treatment of Contagious Diseases.

The annual banquet Wednesday evening will be addressed by Dr. John H. J. Upham, Columbus, Ohio, President-Elect, American Medical Association, on "Changing Times in Medicine" and Gordon J. Laing, Ph.D., Chicago, "Are Doctors Human?" A certificate of merit will be presented posthumously to Dr. Walter J. Leach, New Albany, president of the state society in 1935. For entertainment, many side trips have been planned in addition to the annual golf and trap shooting tournaments. A dinner for women physicians will be held Monday evening, and Dr. Agnes Beulah Cushman, Chicago, will speak on "Experiences in India." The annual smoker and stag party will be held the same evening, when the golf and trap shooting prizes will be awarded. The woman's auxiliary will meet, October 6-7. Dr. Charles P. Emerson, Indianapolis, as guest speaker, will discuss "What Can the Woman's Auxiliary Contribute to the Practice of Medicine?"

IOWA

Clinical Meetings.—Drs. Dean D. Lewis and Walter E. Dandy, professor of surgery and adjunct professor of neurologic surgery, Johns Hopkins University School of Medicine, Baltimore, addressed a special meeting of the Des Moines Academy of Medicine and Polk County Medical Society, September 4, on "Diagnosis of Bone Lesions" and "Diagnosis and Treatment of Brain Tumors" respectively. The guests conducted clinics in the afternoon. They conducted a similar program before the Linn County Medical Society, Cedar Rapids, September 3. At the regular meeting of the Des Moines group, September 26, Dr. Oliver J. Fay, Des Moines, will speak on the subject "Would the Practice of Medicine as Envisaged Through the Social Security Act Contribute to the Security of Either the Public or the Medical Profession?" Dr. William G. MacCallum, Baltimore, will address the Linn County Medical Society, October 2, on "Characteristics of the Hypophysis."

MAINE

Society News.—Drs. Frederick C. Holden, New York, and David Riesman, Philadelphia, addressed the Hancock County Medical Society, Bar Harbor, July 24, on "Pelvic Infections in Women" and "Diagnosis and Treatment of Heart Failure" respectively.——At a recent meeting of the Washington County Medical Association in Eastport, Dr. Frederick J. C. Smith, Eastport, among others, spoke on the diagnosis of acute appendicitis.

Medicolegal Society Formed.—At a recent conference of medical examiners in Rangeley, a state medicolegal society was established with the following officers: Drs. Herbert C. Scribner, Bangor, president; John G. Towne, Waterville, vice president; George L. Pratt, Farmington, secretary, and William Holt, Portland, treasurer. Eligible for membership are the medical examiners, the attorney general of the state and his assistants and the county attorneys. Meetings are to be held at the time of the annual meeting of the Maine Medical Association.

MASSACHUSETTS

Health Cabin Dedicated.—A cabin, erected at a cost of $1,200 by the Worcester Exchange Club, was presented to officers of the Southern Worcester County Health Association in a formal dedicatory program, August 12. The cabin is on the site of the Sterling Health Camp, which through the season now cares for about 500 children. The children are divided into groups and stay at the camp four weeks each. About 3,000 children have been cared for at the health camp since its establishment in 1924.

MICHIGAN

Joint Meeting.—The University of Michigan and the Children's Fund of Michigan held a conference at Marquette, August 19-20. The session opened with a symposium on "What Constitutes a Complete Health Service for the Community?" presented by Dr. Hugo A. Freund, Detroit, president of the fund; Dr. John Sundwall, Ann Arbor; Louise Knapp, R.N., Detroit; Howard B. Lewis, Ph.D., and Paul H. Jeserich, D.D.S., Ann Arbor. Other speakers included:

Dr. Henry J. Vandenberg, Grand Rapids, Present Knowledge of the Cause and Cure of Cancer.
Howard Y. McClusky, Ph.D., Ann Arbor, Growing Up Mentally.
C. H. Jamieson, D.D.S., Detroit, Some Aspects of a Full Denture Practice.
George E. Morgan, D.D.S., Milwaukee, Practical Pediadontia for the General Practitioner.
Dr. Arthur C. Curtis, Ann Arbor, Etiology and Management of Chronic Arthritis.
Dr. Norman F. Miller, Ann Arbor, The Obstetrics Problem.

The program concluded with a discussion of community health services, among others, by Dr. Clyde C. Slemons, Lansing, state health commissioner, and Miss Marjorie Delavan, director, bureau of education, state department of health, Lansing.

MINNESOTA

Personal.—Dr. Hugh Cabot, Rochester, gave two lectures at St. Thomas's Hospital, London, August 24-25, on "Treatment of the Obstructing Prostate" and "Cryptorchidism, with Particular Reference to the Effect of Malposition on the Testis and Methods of Treatment."——Dr. Ralph M. Tovell, assistant professor in anesthesia at the University of Minnesota (Mayo Foundation), Rochester, has resigned to become chief anesthetist at the Hartford Hospital, Hartford, Conn., effective September 1.——Dr. Melvin S. Henderson, Rochester, has been appointed a corresponding member of the Argentine Society of Orthopedic Surgery.

Chiropractor Leaves State—Goes to Iowa.—The Minnesota State Board of Medical Examiners, July 14, filed a complaint against A. A. Nitzke, charging him with practicing healing without a basic science certificate at Windom. Before the warrant could be served, Nitzke left the state and, according to the board, is practicing chiropractic at Storm Lake, Iowa. Investigation disclosed that while he was neither registered under the basic science law in Minnesota nor licensed to practice chiropractic in the state, he was placed in charge of the chiropractic office of M. E. Tegels, who left on a trip to be gone about six weeks. Evidence was obtained to show that Nitzke gave chiropractic treatments to a number of Tegels' patients during the week of July 6. Any one learning that Nitzke is practicing in the state is urged to communicate with the state board.

MISSOURI

Director of Rural Health Named.—Dr. John W. Williams Jr., Springfield, health officer of Greene County for the past eleven years, has been appointed director of rural health with the state board of health under the social security program. Dr. Lynn M. Garner, health officer of Miller County, has succeeded Dr. Williams in Greene County.

Fall Clinical Conference.—The Kansas City Southwest Clinical Society will hold its fourteenth annual fall clinical conference at the new Municipal Auditorium, Kansas City, October 4-8. Guest speakers will include:

Dr. George E. Bennett, Baltimore: Treatment of Fractures of the Neck of the Femur; Recent, Old and Recurrent Dislocations of the Shoulder.
Dr. Milton A. Bridges, New York: Evaluation of the Under Par Man; Present Status of Nutrition in Relation to Disease; Fads and Fallacies Regarding Food and Diet.
Dr. Joseph A. Capps, Chicago: A Follow-Up Study of a Series of Cases of Bacterial Endocarditis; Air Embolism versus Pleural Reflex as a Cause of Syncope in Operative Procedures in the Thorax.
Dr. George W. Crile, Cleveland: The Genesis and Surgical Treatment of Essential Hypertension; A Critical Review of 26,219 Operations on the Thyroid Gland with Special Reference to the End Results.
Dr. Morris Fishbein, Chicago: Heart Disease—How to Live Long in Spite of It.
Dr. Albert C. Furstenberg, Ann Arbor: Acute Infections of the Pharynx, Mouth and Neck; A Clinical and Pathological Study of Tumors and Cysts of the Head and Neck.
Dr. Urban Maes, New Orleans: Infections of the Dangerous Areas of the Face—Their Pathology and Treatment; The Justification for Exploratory Laparotomy in the Absence of a Definite Diagnosis.
Dr. Jay Arthur Myers, Minneapolis: Research Advances in the Diagnosis and Treatment of Tuberculosis; Modern Methods in Tuberculosis Control; Driving Tuberculosis from Our Midst.
Dr. Benjamin Weems Turner, Houston, Texas: Urethral Stricture in the Male and in the Female—History, Etiology and Treatment; Urology in Children.
Dr. Derrick T. Vail Jr., Cincinnati: Optochiasmatic Arachnoiditis: Its Relation to Sinus Disease and Multiple Sclerosis; Posterior Sclerotomy in the Treatment of Expulsive (Subchoroidal) Hemorrhage.

Scientific papers will also be presented by members of the society. New features this year include clinicopathologic conferences and special clinics on the heart, chest, gastro-intestinal tract, orthopedics, cancer and obstetrics and gynecology. Round table luncheons will be held each day, with addresses by two guest speakers. A public health meeting will be held Monday evening October 5. Tuesday evening the session will be presented in conjunction with the Jackson County Medical Society. Wednesday evening will be devoted to entertainment and the alumni dinner will be on Thursday evening.

MONTANA

Plague-Infected Ground Hog.—Surg. Clifford R. Eskey, U. S. Public Health Service, in charge of plague suppressive measures, San Francisco, has reported plague infection in fleas and lice from ground hogs killed in Small Horn Canyon, about twelve miles southwest of Dillon, Beaverhead County. According to Dr. Eskey's report, this is the first direct evidence that plague exists among marmots in America and demonstrates that the infection may be recovered from lice as well as from fleas taken from these rodents. Surgeon Eskey later reported that plague had been identified in a sick ground hog. This hog, killed July 31 in Indian Creek Canyon, fourteen miles northeast of Beaver, Beaver County, Utah, is believed to be the first plague-infected marmot reported in the United States, according to *Public Health Reports.*

NEW YORK

Laboratory Head Honored.—Dr. Morris Maslon, Glens Falls, was honored at a testimonial dinner at the Fort William Henry Hotel, Lake George, August 5, celebrating his twenty-fifth anniversary as head of the Warren County Laboratory. Among the speakers were Drs. Burke Diefendorf, Glens Falls, and Thomas Ordway, dean and professor of medicine, Albany Medical College. Dr. Leonard H. Hulsebosch, Glens Falls, president of the Warren County Medical Society, and Miss Rose Q. Strait, superintendent, Glens Falls Hospital, arranged the dinner.

Personal.—Harry Hamilton Laughlin, Sc.D., assistant director of the Carnegie Institution, Cold Spring Harbor, received the honorary degree of doctor of medicine from the University of Heidelberg at the recent celebration of the five hundred and fiftieth anniversary of the university.

New York City

Tuberculosis Conference.—The seventh clinical session on chronic pulmonary diseases held under the auspices of the Tuberculosis Sanatorium Conference of Metropolitan New York will be at Cornell University Medical College October 7. Dr. Foster Murray, chairman of the clinical section of the conference, will preside, and a symposium on "Occurrence of Fluid in the Course of Artificial Pneumothorax" will be presented by Drs. Hazel McLeod Riggins, Edgar Mayer, David Ulmar; John M. Nicklas, Valhalla, and William J. Ryan, Pomona.

NORTH CAROLINA

Graduate Assembly.—The Medical Society of the State of North Carolina sponsored a graduate assembly at Banners Elk, August 20-21. The first day was devoted to a scientific program and the second to clinics conducted by Dr. John H. Musser, professor of medicine, Tulane University of Louisiana School of Medicine, New Orleans. On the program were:

Dr. Verne S. Caviness, Raleigh, Pneumonia.
Dr. Clyde M. Gilmore, Greensboro, Rheumatic Heart Disease.
Dr. Charles H. Cocke, Asheville, Evolution of Modern Treatment of Tuberculosis.
Dr. Duncan W. Holt, Greensboro, Backache.
Dr. William Allen, Charlotte, Inheritance of Shaking Palsy.

Dr. Musser made the principal address at a banquet at Pinnacle Inn Thursday evening. Dr. Cocke was toastmaster. The clinics were held at Grace Hospital.

Changes at Wake Forest College.—Dr. Coy C. Carpenter, who has been acting dean at Wake Forest College of Medicine, Wake Forest, has been elected dean to succeed Dr. Thurman D. Kitchin, who was made president of the college in 1930. A new biochemistry laboratory has been equipped and the former space assigned for research, which is to be financed by a grant from G. Layton Grier, D.D.S., president of the L. D. Caulk Company, Milford, Del. Herbert C. Tidwell, Ph.D., recently in the department of biochemistry at Duke University, Durham, has been appointed Grier professor of biochemistry and will devote most of his time to research. A new laboratory for embryology and microscopic anatomy has been provided; the departments of gross and microscopic anatomy and those of pathology and bacteriology have been combined with added facilities and staff. Dr. Edward S. King, professor of physiologic chemistry and bacteriology, is on leave of absence to spend the current semester at Harvard University Medical School, Boston, and Dr. George C. Mackie, professor of physiology and pharmacology, at the University of Edinburgh.

OHIO

Hospital News.—The Oxford Retreat, Oxford, a sanatorium for nervous and mental patients founded in 1882, was closed July 16 and its building leased to Miami University.——Dr. Neal N. Wood, formerly director of Hillman Hospital, Birmingham, Ala., has been appointed director of Starling-Loving University Hospital, Columbus.

Graduate Course in Ophthalmology.—The Cleveland Ophthalmological Club announces that its annual graduate course in ophthalmology will be given December 7-9 and requests that those interested make early application for enrolment. The fee is $15. Application should be made to Dr. Albert D. Ruedemann, Cleveland Clinic, Cleveland, chairman of the program committee.

PENNSYLVANIA

Society News.—Dr. Bernard J. Alpers, Philadelphia, will address the Harrisburg Academy of Medicine, September 15, on "Common Nervous Complications Encountered in General Practice."——The Lehigh County Medical Society held its annual outing August 11 at the Lehigh Country Club.

State Program for Crippled Children.—With the aid of funds allotted by the Social Security Board, a plan for rehabilitation of crippled children has been launched by the state department of health. The state has been divided into twelve districts, in which a local orthopedic surgeon will have charge of the work. Children will be located, their disability diagnosed and recommendation made for treatment. Four clinics will be held in each district every year. Braces and appliances will be bought with social security funds and hospitals will be paid $4 a day per patient for necessary services. The first clinic was held at Geisinger Hospital, Danville, August 20, under the direction of Dr. Royal L. Simon, Williamsport. Seventy children were examined.

SOUTH DAKOTA

Personal.—Dr. Clarence E. Sherwood, Madison, has been appointed health officer of Lake County to succeed the late Dr. Emerson W. Goldman, it is reported.——Dr. Raymond P. Frink, Wagner, has been appointed physician to the Yankton Sioux Indian reservation, succeeding Dr. Gregory R. Waters.

TEXAS

Society News.—Drs. Paul C. Williams and Harold A. O'Brien addressed the Dallas County Medical Society, September 10, on "Hypertrophic Arthritis" and "Tumors of the Testicle" respectively.——Drs. Walter R. Russell, Purdon, and William C. Tenery, Waxahachie, addressed the Navarro County Medical Society in Corsicana, August 1, on "Handicaps Overcome by a Country Doctor" and "Emergency Treatment of Burns" respectively.

Division of Industrial Hygiene.—The Texas State Department of Health has created a division of industrial hygiene financed by social security funds, with Dr. Carl A. Nau, formerly professor of physiology at the University of Oklahoma School of Medicine, as director. Preliminary surveys are now in progress for location of potential health hazards in industry, which will be studied in detail in the laboratory now being equipped.

WEST VIRGINIA

Industrial Hygiene Unit Formed.—A bureau of industrial hygiene has been established in the state department of health with Dr. Otto J. Swisher Jr., Berkeley Springs, as director. The bureau is financed by federal funds, under the provisions of the Social Security Act, matched by state appropriations. Among its first activities will be a survey of the silicosis hazard in the state. At a meeting of the state health commissioner with the advisory compensation committee of the West Virginia Medical Association it was agreed that x-ray plates made by the bureau in suspected cases would be used for no other than the survey purposes and that all persons suspected of having the disease would be advised to see their personal physicians.

Society News.—Drs. Russel Kessel and Andrew E. Amick, Charleston, addressed the Central West Virginia Medical Society in Webster Springs, July 25, on "Conservative Management of Pelvic Inflammatory Diseases" and "Practical Factors in the Management of the Acute Diarrheas in Infants and Children" respectively.——The annual social outing of the Cabell County Medical Society was held at the Guyan Country Club, Huntington, August 20, with a golf tournament followed by a dinner.——Dr. William B. Scherr, Morgantown, addressed the Monongalia County Medical Society, August 4, on gynecologic subjects.——The annual conference of health officers and meeting of the West Virginia Public Health Association will be held in Wheeling October 12-14.

WISCONSIN

Personal.—Dr. Robert S. Vivian has resigned as health officer of Beloit to devote his time to private practice.——Dr. John W. Lowe, Merrillan, has been appointed health supervisor of the district including Ashland, Bayfield, Burnett, Douglas, Iron, Sawyer and Washburn counties, with headquarters at Ashland.

Society News.—The medical societies of Walworth, Kenosha and Racine counties held a joint meeting at Lake Geneva July 1, dedicated to Dr. Benjamin J. Bill, Genoa City, one of the oldest practicing physicians in the state. Speakers on the scientific program were Drs. John C. Docter, Racine, on breast feeding; Francis D. Murphy, Milwaukee, diagnosis and treatment of heart disease; Robert M. Grier, Evanston, Ill., breech presentation, and Lathan A. Crandall Jr., Chicago, practical aspects of liver function.——Drs. Lawrence V. Littig and Lester McGary, Madison, addressed the Sauk County Medical Society, Baraboo, July 29, on "Skin Cancer and Its Treatment" and "Hay Fever and Asthma" respectively.

PHILIPPINE ISLANDS

New Leprosariums Planned.—A special committee of the bureau of health has selected sites for three regional treatment stations for lepers in Luzon: Enrile, Cagayan; Bangued, Abra, and Norzagaray, Bulacan. The president of the islands advocates establishment of these stations, according to the *Journal of the Philippine Islands Medical Association*, believing that it is unwise to segregate all lepers in Culion.

GENERAL

Study of Deaths from Excessive Heat.—The North Central states had the highest death rate from excessive heat during the years 1931 to 1933, according to a study recently published by the Metropolitan Life Insurance Company in its *Statistical Bulletin*. Of nine groups of states, the East North Central states, including Ohio, Indiana, Illinois, Michigan and Wisconsin, and the West North Central group, including Minnesota, Iowa, Missouri, North and South Dakota, Nebraska and Kansas, had the highest group rates, each 2.2 per hundred thousand. Within these groups were the highest rates for individual states except Arizona and Nevada. They were Wisconsin, 3.9; Iowa, 3.2, and Illinois, 3.1. The rate for Arizona was 9.7 and for Nevada 8.6. The rate for two groups of Southern states was 0.8 and for the Western Southern states of Oklahoma, Arkansas and Louisiana it was 0.9. When the rates for white and colored persons were separated, however, the rates for Negroes in the South were about twice as high as those for the white population.

Tuberculosis Meeting.—The Mississippi Valley Conference on Tuberculosis and Mississippi Valley Sanatorium Association will convene at the Pere Marquette Hotel, Peoria, Ill., September 24-26. The preliminary program includes the following speakers:

Mr. Murray A. Auerbach, Indianapolis, Training Workers in the Field of Practical Tuberculosis Activities.
Dr. Hoyt E. Dearholt, Milwaukee, Evaluating Our Work in Terms of Improved Tuberculosis Control.
Dr. David O. N. Lindberg, Decatur, Ill., Finding the Case: An Evaluation of Methods.
Mr. Theodore J. Werle, Lansing, Mich., A Study of Tuberculosis in the Laws.
Dr. Amelia T. Wood, Muncie, Ind., What Should Our High Schools Teach About Health?
Dr. Jay Arthur Myers, Minneapolis, Tuberculosis in a Health Teaching Program.
Miss Fannie B. Shaw, National Tuberculosis Association, The Objectives of School Health Education.
Dr. Warren Wadsworth, Detroit, Bronchoscopic Observations of Tracheobronchial Obstructions in Tuberculosis.
Drs. Sumner S. Cohen, Oak Terrace, Minn., and Kenneth A. Phelps, Minneapolis, Bronchiectasis Associated with Tuberculosis.
Dr. Carl V. Weller, Ann Arbor, Mich., Pathologic Features of Bronchogenic Carcinoma.

There will be a symposium on nontuberculous pulmonary lesions Thursday afternoon with the following speakers: Drs. Ferris Smith, Grand Rapids; Jacob J. Singer, St. Louis; Cameron Haight, Ann Arbor, and Oscar A. Sander, Milwaukee. A joint session of the sanatorium association and the tuberculosis conference will be held Friday morning. Speakers will be Dr. Arthur A. Pleyte and Metta Bean, Milwaukee, on "Opportunities for Finding Tuberculosis in Relief Families"; Dr. Robinson Bosworth, Rockford, Ill., "The Rôle of the Sanatorium in the Control Program"; Dr. Myers, Minneapolis, "Latent Period Between Infection and So-Called Adult Disease as Occurring in Childhood up to Adolescence," and Dr. Allen K. Krause, Tucson, Ariz., "Pulmonary Tuberculosis in Childhood." An x-ray clinic will be conducted Friday evening by Drs. Henry Kennon Dunham and Vera V. Norton, Cincinnati.

Academy of Ophthalmology and Otolaryngology.—The forty-first annual convention of the American Academy of Ophthalmology and Otolaryngology will be held at the Waldorf-Astoria Hotel, New York, September 26 to October 3, under the presidency of Dr. Frank E. Burch, St. Paul. Sir John Herbert Parsons, London, the guest of honor, will speak at the opening joint session Monday morning on "Ophthalmology

and Research." At this session Dr. Burch will give the presidential address, and a symposium will be presented on "Manifestations of Diseases Affecting Cerebral Nerves Supplying Eye, Ear, Nose and Throat Due to Involvement of the Central Nervous System" by Drs. Donald J. Lyle, Cincinnati; Marvin F. Jones and Henry A. Riley, New York. The succeeding mornings will be devoted to conferences and the afternoons to addresses by the following speakers, among others:

Dr. Lee W. Dean, St. Louis, Fundamental Principles in the Treatment of Allergic Rhinitis, with Special Reference to Iontophoresis (Ionization).
Dr. Robert H. Ivy, Philadelphia, Tumors and Cysts of the Mouth and Jaws of Interest to Otolaryngologists.
Dr. Alan C. Woods, Baltimore, Allergy in Clinical Ophthalmology.
Dr. Samuel Hanford McKee, Montreal, Canada, Sarcoma of the Uveal Tract—Malignant Melanoma.
Dr. Arthur J. Bedell, Albany, N. Y., Pigmentation of the Fundus.
Dr. John J. Shea, Memphis, Tenn., Indications for Blood Transfusion in Otolaryngologic Work.
Dr. Joel J. Pressman, Los Angeles, A New Method of Radium Application in Cancer of the Bronchus.
Dr. Parker Heath, Detroit, Visual Sequelae from Meningococcus Meningitis.
Dr. Karl L. Stoll, Cincinnati, Glaucoma and Nevus Flammeus.

The section on instruction is sponsoring a special symposium Tuesday evening on "Lymphatic Drainage of the Head," presented by Dr. Oscar V. Batson, Philadelphia; Dr. Augustus G. Pohlman, Omaha, and Olof Larsell, Ph.D., Portland, Ore. The committee on deafness prevention and amelioration will present a symposium Tuesday afternoon on progress in this field, with the following speakers: Drs. Horace Newhart, Minneapolis; Austin A. Hayden, Chicago; Burt R. Shurly, Detroit, and Miss Betty C. Wright, executive director, American Society for the Hard of Hearing, Washington, D. C. Monday evening there will be a dinner meeting at which a panel discussion on graduate medical education will be presented. Dr. Willard C. Rappleye, dean, Columbia University College of Physicians and Surgeons, will introduce the discussion, and participants will be Drs. Ralph A. Fenton, Portland, Ore.; Dean M. Lierle, Iowa City; Harris P. Mosher, Boston; Cecil S. O'Brien, Iowa City; Harry S. Gradle, Chicago; Walter B. Lancaster, Boston, and William D. Cutter, secretary, Council on Medical Education and Hospitals, American Medical Association, Chicago. For the first time the academy will have a scientific exhibit. Friday and Saturday will be given over to clinics at various hospitals, with a dinner at the New York Academy of Medicine Friday evening for those participating.

Deaths in Other Countries

Lord Moynihan of Leeds, emeritus professor of surgery, University of Leeds, and chairman of the Army Medical Advisory Board, died in Leeds, September 7, aged 70.

Government Services

Closing Date for Applications Changed

The U. S. Civil Service Commission announces that the closing date for receiving applications for examinations for medical officers announced in THE JOURNAL August 29 has been changed from September 8 to September 15.

Forty-First State Free from Bovine Tuberculosis

Rhode Island is the forty-first state to be designated a modified accredited area, practically free from bovine tuberculosis. The term modified accredited area means that there is less than one half of 1 per cent of tuberculosis among cattle as shown by official testing. Tuberculosis eradication was undertaken in Rhode Island about twenty years ago and has been greatly increased in the last five years.

Medicomilitary Inactive Training

The eighth annual training course for medical department reservists of the U. S. Army and Navy will be held at the Mayo Foundation, Rochester, Minn., October 4-17. Morning hours will be devoted to professional work in special clinics and study groups, while the afternoons and evenings will be given over to a medicomilitary program under the direction of the surgeon of the seventh corps area and the surgeon of the ninth naval district. Enrolment, limited to 200, is open to all army and navy reservists of the medical departments in good standing. Applications should be submitted to the surgeon of the seventh corps area, Omaha, Neb., or the surgeon, ninth naval district, Great Lakes, Ill.

Foreign Letters

LONDON

(From Our Regular Correspondent)

July 25, 1936.

The Annual Meeting of the British Medical Association

The 104th annual meeting of the British Medical Association was held at Oxford. At the representative meeting a discussion took place on the important subject of the space occupied in the *British Medical Journal* by the publication in extenso of the proceedings of the scientific sections at the annual meeting. It was moved (1) that it be left to the discretion of the editor as to how fully they be published and (2) that in consequence of the curtailment thus entailed a special edition of the *Journal* be devoted to papers of the sections. From the last annual meeting these ran to 244 pages of the *Journal* over a period of twenty-five weeks. While allowed discretion as to the occasional papers, the editor must publish the opening papers of every section. This year there were twenty sections with thirty-eight meetings. The papers to be published might run to 190,000 words or more. There was an objection to the bulkiness of the material and also to the fact that some of it might be out of date at the time of publication.

Dr. R. G. Gordon, chairman of the Journal Committee, said that this matter had exercised the committee. A great proportion of the *Journal* was occupied by these papers, which were of unequal value. No one would like to go back to the publication of all the papers read at the annual meeting, which had been abandoned. The opening papers were now published and the committee had decided that in future the authors would be asked to cut them down to 3,000 words, leaving it to the discretion of the editor to allow a little excess should the paper so demand. The separate publication of the proceedings of the annual meeting would be expensive, running to $7,500. This was done at the London clinical meeting of 1919. It was thought that the contributions—the result of four years of war—would be of special interest, but the sales were negligible. There were difficulties in the proposal that the opening papers should be submitted to the editor like other articles. Unless the opener was assured of publication, he might not take the trouble to prepare his paper. Also extreme pressure on the editorial staff would be involved. The first part of the resolution was carried and the second part lost by a large majority.

In his report on *Journal* policy, Dr. Gordon stated that 1,008 original articles were received last year and 544 published. The latter had to be closely edited. The editorial department received 12,972 letters and sent out 8,722. Books received for review amounted to 908, of which 595 were reviewed, a large proportion, in view of the average value of the books now published. It has been decided to adopt a new typography and a new type face for the *Journal* and to contract with a printing firm for the whole production instead of doing the composition and setting in the Association's House, as at present.

ANNOUCEMENTS IN NEWSPAPERS

The following recommendation of the council was moved: "That in the opinion of the association the lay press should never be utilized by a practitioner to publish his change of address, to announce his movements, or to announce his surgery (office) or consulting hours. There is no objection to such matters being issued by a circular letter to patients of the practice. Such circulars should be issued in sealed envelops and be confined to those whose names have been on the books of the practice during the last two years and who are not

known to have transferred themselves to another practitioner." The recommendation, amended by omitting the word "sealed" and substituting "are on the books of the practice" for "have been . . . during the last two years," was carried.

THE FUTURE OF MEDICINE: HEALTH CENTERS

In his presidential address Sir Farquhar Buzzard, regius professor of medicine in the University of Oxford, said that the day had passed when any doctor, whether in general or consulting practice, could legitimately carry on as an isolated and independent unit ready to meet all the requirements of his patients. He must be part of a team. Modern means of communication made possible the establishment of health centers where the personnel and equipment necessary for skilled diagnosis and treatment can serve large areas. Every physician in the area should belong to the service and be part of the team, of which each member had his own specific functions. For two reasons general practitioners should become more intimately associated with such health centers. The voluntary hospitals were understaffed and therefore the standard of efficiency was not as high as it would be if general practitioners participated in the work. In the second place they would benefit if they could devote even two or three hours a week to hospital work, thus keeping in touch with colleagues and abreast of contemporary advances. Sir Farquhar envisaged a central board, based on the chief hospital, but representative of all interests and institutions concerned with the health of the district. Where a medical school was included it would send delegates of the more academic departments. The board would coordinate all the preservative, preventive and curative services within the district.

The whole system of voluntary hospitals was threatened by the establishment of municipal hospitals all over the country, which in the future would be equally well equipped and afford the same opportunities for clinical study and, unlike the former, would pay for full time or part time study. This, with the increasing demand of well-to-do patients for treatment in hospitals, must lead to the disappearance of the purely honorary position of the staff in voluntary hospitals to some system of payment for their part time services.

General practice was disturbed and still threatened by recent changes. Insidiously but steadily it had been lopped of many of its branches. This was partly in response to the demand of the public, for economic or other reasons, that various services, not limited to the field of public health, should be controlled by local authorities. But he failed to see why general practice should not assume a more important rôle in the future. The saving of life had become the job of institutional team work; the saving of health and the prevention of illness, in the long run more important, must be initiated by the general practitioner in the home. But to perform this work efficiently, he must help to staff those medical services, preventive and curative, which have been diverted to the control of public health authorities.

TREATMENT OF FRACTURE OF NECK OF FEMUR

Opening a discussion in the Section of Surgery, Royal Whitman stated that fracture of the neck of the femur was amenable to the rules that govern the treatment of other fractures. By the abduction method deformity could be corrected, and displaced fragments apposed with ease and certainty. In former years the proportion of union obtained in complete medial fractures was very low: 6 per cent in one series, 11.6 in another. The lowest percentage of union reported for the abduction method was over 53. Henderson of the Mayo Clinic estimated the prospect of repair at 90 per cent in patients under 60, and at 65 per cent beyond that age.

Smith-Petersen based his spiking operation on the capacity for repair demonstrated by the abduction method. To reduce the percentage of failure he exposed the fractured surfaces, adjusted by direct manipulation and fixed his flanged nail. In his first series of twenty-four cases union was attained in 75 per cent; in a second series of twenty-six, in 70 per cent. Several deaths occurred, but not directly from the operation. The experiences of others had been less fortunate. Another operation was apposition of the fragments by the abduction method and fixing them by the Smith-Petersen nail. Whitman suggested that the insertion of the nail impaired the capacity for repair by injuring the cancellous tissue. The early resumption of activity claimed was a doubtful advantage. The fragile cortex of elderly patients might give way.

THE NEW SECTION OF NUTRITION

Sir Robert McCarrison opened a discussion at the new Section of Nutrition, which was inaugurated at this meeting, on "Nutrition in Health and Disease." He said that last among the sections it was not the least and the day was not far distant when, instead of one morning being devoted to its work, it would rank with the Section of Medicine as a three-day fixture. It was becoming apparent that the science of nutrition was the foundation of a more rational medicine. He hoped that in the future the work of the section would not be limited to physiologic, biochemical, pathologic and medical aspects of the subject but would include veterinary and agricultural topics. The foods now called "protective" were discovered centuries ago by certain races of northern India whose physique and health were unsurpassed. Such foods must be produced on soils that were not depleted of essential plant nutrients, such as iodine, which was needed for the normal nutrition of man. Poverty was not the only cause of malnutrition. Education of the people and better education of ourselves were urgent necessities. It might be said that the medical curriculum was already overloaded. If so, let it be pruned; let us teach the student less about disease and drugs and more about health, more about nutrition, which is the very basis of health.

THE POLLUTION OF SHELLFISH

In the Section of Public Health Dr. R. W. Dogson, director of shellfish services, Ministry of Agriculture, said that had we set out to ensure the continued existence of typhoid in this country we could have hardly found a better plan than that of turning out the crude sewage from the large centers of population on to a shellfish bed and then distributing the shellfish all over the country. Success might be doubly assured by importing, as we did, shellfish from countries in which the incidence of typhoid was much greater than our own. The disposal of sewage by discharge into the sea was described as "purification by dilution." In the presence of shellfish it might be described as "purification by concentration." An oyster could filter out and retain for a considerable period all the suspended matter from at least 10 gallons of water in the twenty-four hours. Attempts to grapple with the situation had been ineffective. The deviation of sewers was impracticable owing to its cost. So was the purification of sewage. Closure of polluted fisheries had been done on a considerable scale. Two thirds of the mussel beds in England and Wales had been closed. The only practicable form of purification was one that was carried out under artificial conditions in tanks. The alternative was that all molluscan shellfish would have to be banned.

THE USE AND ABUSE OF MANIPULATIVE SURGERY

In the Section of Orthopedics Mr. Blundell Bankart said that the great majority of civilized people had acquired some restriction of the natural mobility of their feet, so that they

could not flatten without meeting with resistance of the soft parts, producing pain. But the completely flat foot was painless. The medical profession and the public were obscessed with supporting the arch of the foot. In theory this was ridiculous, for the foot was meant to be an active supple member, not rigid like a block of wood, and in practice this had proved a failure. On the other hand the bonesetter smashed the arch of the foot, or, to put it less crudely, he restored its mobility, so that it could flatten without resistance and therefore without pain, and he cured his patients. Foot strain (not flat foot) was one of the commonest ailments and might be postural or traumatic in origin. It could be cured by manipulation and in no other way.

As for the other side of the picture, a physician brought his son with an obviously tuberculous elbow. He had taken him to a bone setter, who had violently manipulated the joint and it had flared. As the bone setter had no medical training, it might be said that he never should manipulate a joint. But what about flat foot and other cases cured by bone setters after failure to get relief elsewhere? Mr. Bankart still heard of orthopedic surgeons of repute who treated so-called flat foot with arch supports, who did not recognize sacro-iliac strain, the commonest cause of pain in the back, and who professed to be familiar with manipulative surgery but seldom practiced it. To dispense with bone setters, surgeons should be willing to undertake all the manipulative work that was previously done by these.

Osteopathy Mr. Bankart described as an American stunt based on the unsupported assertion that almost all diseases are caused by imaginary displacements of the spine. It had been investigated up to the hilt and found wanting. It was up to all orthopedic surgeons to see that these confidence tricks were exposed and to ensure that manipulative surgery was practiced and taught in all medical schools.

EXHIBITION OF MEDICAL BOOKS AND MANUSCRIPTS

The famous Bodleian library arranged an interesting exhibition of medical books and manuscripts, such as would be possible nowhere else. The earliest manuscript was an English missal of A. D. 970 containing a magical device for discovering whether a sick man will live or die, a matter in those days important to the clergy in the administration of extreme unction. There was a manuscript written about 1290, giving the first known representation of dissection; an English herbal of about 1100 in which many of the plants were drawn from living specimens, and another of somewhat later date in which is depicted a mad dog and a bitten man in a hydrophobic seizure. But the exhibition was chiefly concerned with the study of medicine at Oxford, and especially with the famous group of Oxford men who adorned the medical profession in the seventeenth century. The statutes of the Faculty of Medicine, written before 1350, were shown. There were manuscripts of some of the medical authors studied at Oxford in the Middle Ages—Hippocrates, Galen, Isaac Judaeus and Nicolaus Praepositus. The earliest record of a medical degree is in the Register of Congregation, where it is recorded that Thomas Edmonds was allowed to proceed to the degree of D.M. in 1450. There was also a manuscript of the "Rosa Anglica" by John of Gaddesden (who died in 1361), the earliest account of phototherapy. He treated a son of Edward I of smallpox by wrapping him in scarlet cloth. The greatest name in Oxford medical history of the sixteenth century is that of Thomas Linacre, founder of readerships in both Oxford and Cambridge. His translation of Galen's "De Temperamentis" on vellum was shown. The books of the seventeenth century began with Harvey's "De Motu Cordis" (1628), in which he first published his discovery of the circulation of the blood.

PARIS

(From Our Regular Correspondent)

Aug. 1, 1936.

Two-Stage Lobectomy

The advantages and disadvantages of two-stage lobectomy was the subject of a paper read by Robert Monod at the May 15 meeting of the Société de chirurgie of Paris. In a paper read at the July 14, 1934, meeting, Monod had defended the principle of a one-stage lobectomy, when no pleural adhesions exist, for bronchopulmonary suppuration. At that time, however, he called attention to the fact that such a one-stage operation is always undertaken with some degree of anxiety as to the result. A lobectomy, when no pleural adhesions exist, can be followed by immediate cardiopulmonary accidents as well as certain later ones, such as extension of infection to the mediastinum, to other lobes or to the pleural cavity. To avoid such complications, the most important measures employed at present are baronarcosis, bronchorespiration and irreversible drainage. In spite of these additions to the technic, two potential dangers must be faced: (*a*) cardiopulmonary accidents during the operation and (*b*) extension of infection to the pleura after operation. The patient is often a poor operative risk because of his bad cardiac condition and because of the long standing infection. An empyema is especially to be feared, owing to the fact that the lobectomy stump may open and allow pus to escape into the pleural cavity, giving rise to a very virulent and rapidly spreading infection.

The two-stage operation has certain advantages, according to Monod. The first stage is one of preparation of the pleura; i. e., adhesion of the noninvolved lobe (left) or lobes (right) to the parietal pleura. Another advantage of the two-stage operation is that it places less of a burden on the heart. Finally, liberation of the involved lobe during the first stage enables it to discharge much of its purulent contents through its main bronchus. The disadvantages of the two-stage operation are that the risks due to the anesthesia are twice as great as in the one-stage operation, one is less able to take care of the pedicle following the lobectomy, fistula formation occurs more frequently, and removal of the lobe itself is more difficult. A two-stage lobectomy ought to be performed when no pleural adhesions are present, as follows: During the first stage the involved lobe is mobilized with or without preparation of the pleura to aid the noninvolved lobe or lobes to become adherent to the chest wall, while during the second stage, after immediate lobectomy and care of the pedicle, the chest wall is hermetically closed followed by irreversible drainage.

In younger patients with a normal heart, with little infection or fever, without expectoration, and with only slight adhesions, the one-stage operation is indicated, but in patients with fever, evidences of toxinemia and a doubtful cardiac condition, a two-stage operation is safer. Monod reported a case of lobectomy for bronchiectasis of the left lower lobe in a boy 18 years of age, in which a two-stage operation had been followed by an excellent result.

In the discussion, Maurer stated that the question of infection of the pleural cavity was the most important one. When there is little secretion, lobectomy for bronchiectasis is successful in from 80 to 90 per cent of the cases.

Sequelae of Acute Respiratory Disorders

The Société d'hydrologie et de climatologie médicale de Paris chose the subject of sequelae of acute disorders of the respiratory viscera for discussion at its March 16 meeting.

The first paper was by Professor Rist, who stated that a certain number of acute disorders of the respiratory organs, although apparently cured, can be followed by cicatricial lesions giving rise to functional disturbances in some patients, or at least such lesions constitute areas of diminished resistance which

favor some other pathologic condition. As examples of sequelae of a healed pneumonia, Rist cited interlobar adhesions and of a pneumococcic (diffuse) pleural exudate, obliteration of the free pleural space, i. e., adhesions between the costal and visceral pleurae. Such sequelae complicate greatly the artificial pneumothorax treatment, if a pulmonary tuberculosis develops later. It is of no importance when one is confronted later with these sequelae whether the primary infection is pneumococcic or streptococcic, because it bears no relation to the obliterating adhesions. The same held true for bronchiectases. The original causative organism has disappeared at the period when the sequelae are encountered clinically. Attention was directed to the mistakes in diagnosis, especially from the roentgenologic point of view. A thickened pleura, although it offers resistance to the needle employed for an exploration, does not yield an abnormal shadow on the film. No pathognomonic sign of an obliteration of the pleural cavity exists. All one knows is that the establishment of an artificial pneumothorax is impossible, even though the needle is introduced at a number of places on the chest wall. A sclerosis of the pulmonary parenchyma following an acute frank pneumonia is always very complex both in adults and in children. It is accompanied by an emphysema the characteristics of which both as to etiology and to tissue changes are quite distinct from those of the sclerosis. The use of the latter term has been greatly abused, especially as applied to sclerosis of the apexes and to that accompanying an emphysema. At present there is a tendency to ascribe all sorts of roentgenographic changes to sclerosis which really bear no relation to it. Bands, foci and thickenings of the parenchyma are all ascribed to sclerosis. The latter is of no clinical importance unless complicated by bronchiectasis. The latter never exists in the sense of the classic interpretation of the term unless there is an accompanying infection of the epithelial lining and wall of the bronchi as well as of the adjacent pulmonary parenchyma.

From the period at which the lesions of the primary pneumopathy, instead of disappearing by resolution, persist and sclerosis results, the infection establishes itself in the contiguous areas. The infection persists and often is latent. The physiologic mechanisms that are responsible for the spontaneous disinfection of the previously normal respiratory tract do not function in a portion of the parenchyma the structure of which is seriously altered. The various acute pneumopathies are the principal factor in the etiology of bronchiectasis, other factors such as tuberculosis, hereditary syphilis and recurrent rhinobronchitis being of only limited etiologic importance. Even if there exists a congenital predisposition to bronchiectasis, one cannot deny the necessity of a sclerogenous infection in transforming such a predisposition into a real bronchiectasis.

Rist emphasized the value of bronchography with iodized oil as a diagnostic and prognostic measure. The treatment of choice for bronchiectasis is artificial pneumothorax for the early cases and lobectomy for those in which such a method of treatment is not successful.

In the discussion, Sergent expressed the belief that there are many different causes of a bronchiectasis. Some are of congenital origin, but these constitute the minority. The noncongenital type can follow an acute bronchopneumonia and persist for a long time, or it can develop on the basis of a bronchopulmonary sclerosis and have as a sequel marked dilatations, which are not improved either by phrenicectomy or by collapsotherapy.

Lereboullet stated that in a large number of cases of bronchiectasis in children the initial rôle of bronchopneumonias was not very apparent and that they seemed to act as a factor aggravating already existent lesions. Phrenicectomy had been successful in some cases. This was equally true of placing the children in bed with the head lower than the feet. In children, the prognosis of bronchiectasis is relatively favorable.

Leon-Kindberg thought that, although a congenital origin of bronchiectasis could not be denied, such a cause was very rare. Collapsotherapy was of little value in case of infection. In fact, disastrous results might follow its use.

BERLIN

(From Our Regular Correspondent)

July 16, 1936.

The Society for Research on the Circulation

The Society for Research on the Circulation recently convened jointly with the Medical Committee of the German Society for Industrial Protection. Professor Reiter, president of the National Health Bureau, acted as chairman of the joint meeting. The common topic of discussion proposed was "Circulatory Disorders from the Standpoint of Social and Industrial Hygiene."

W. Weitz of Hamburg spoke first on the hereditability of circulatory diseases. When this type of defect appears among members of one family it is more frequently to be encountered in a group of siblings or in a collateral branch and less likely to appear as a directly inherited trait. Heart disease probably follows the dominant as well as the recessive hereditary transmission. The high familial incidence of inherited cardiac defects, as has been verified by observation, depends in particular on hereditary predisposition to angina and articular rheumatism, wherein a special susceptibility of the cardiac valves may also play a part. Manifestly inherited, as research on twins and families has established, are those constitutional cardiac disorders which frequently accompany infantilism, asthenia, endocrine dysfunction, unstable sympathetic nervous conditions, excessive susceptibility to fatigue, and nervous and psychopathic disturbances. In many such cases a dominant hereditary transmission could be detected. Dominant hereditability is an important etiologic factor in high arterial pressure. External influences such as might be exerted by alcohol, nicotine, psychic excitement and hard physical labor probably serve to make manifest a disease already present in a latent form.

S. Koller of Bad Nauheim demonstrated with statistics that circulatory diseases have become shockingly important in recent years. Group examinations show a circulatory disturbance present in every thirteenth person, and circulatory disease is responsible for every fourth fatality. Aortic sclerosis is found in the middle decades of life in nearly every one. Certain it is that the aging of the population and the improvement in diagnostic accuracy have increased the incidence of circulatory disease as represented statistically. Whether, in addition, an actual increase has taken place cannot be stated with certitude. In medical statistics a frequently unavoidable bias may influence both the individual observation and the compiled material, and this constitutes a source of error.

A further report was submitted by Koelsch, occupational hygienist, of Munich, on "Circulatory Impairment by Occupational Intoxication." The usual occupational intoxications are caused by partial impairment of the cardiac muscle and of the vascular system; some encroach on the nutrition of the cardiac muscle as toxins of the blood; others affect the autonomic nervous system. Irritant gases can lead, by means of vagus shock, to complete arrest of cardiac action. An endocarditis produced by inhalation of poisonous gas must be considered out of the question. A specific cardiac reaction to lead poisoning is not recognizable, although impairments of the heart muscle were observed in forced animal experiments. Acute saturnism in man is accompanied by many dyspneic manifestations, which are perhaps due to spasms in the coronary vessels. Severe cardiac disturbances in chronic lead poisoning are to be regarded as secondary phenomena. Functional disturbances of cardiac action may be due to the effect on the vagus and the sympathicus combined with endocrine dysfunctions. Nicotine assumes a pathologic occupational rôle in the tobacco industry.

New workers have been known to suffer attacks of cardiac palpitation, tachycardia, increased blood pressure and so on.

Hanns Löhr of Kiel then spoke on "Mechanical Impairment of the Circulation." In the most severe contusions of the thorax, external lesions are not necessarily present, although the heart itself may suffer the most serious damage. Lacerations of the valves and tendinous fibers are seldom found in completely healthy hearts. In "commotio cordis" one finds with regularity pronounced, characteristic changes in the electrocardiogram, posttraumatic decline in the arterial blood pressure, and acute dilatation of the heart. Disturbances in cardiac rhythm are entirely independent of the vagus. It is essential to correct diagnosis of the commotional manifestations that all cardiac symptoms should appear immediately after the accident, for heart and vascular disorders that appear later on may also be elicited by the cerebral system.

Hermann Schridde of Dortmund discussed the effect of electrical trauma on the circulatory system: Animal experimentation is to be interpreted with the utmost caution, since man is capable of reactions to the electric current quite unlike the reactions of animals. In cases of burns caused by an electric arc with its heat of about 3,000 C., complete necrosis in the walls of the blood vessels in the burned area is to be observed. Impairment from an electric current produces a contraction of the blood vessels, the severity of which is in proportion to the current's strength. Symptoms of cardiac dysfunction in such cases are due to blood perfusion disturbances in the coronary vessels, which lead at length to heart failure. In 48 per cent of fatalities from electric currents, arrest of respiration is the cause of death; the cardiac death observed in 52 per cent is not in every case related to ventricular fibrillation. Although alternating and direct currents exercise a similar effect on both respiration and circulation, the alternating current is from three to four times more powerful than the direct current. In case of electrical trauma it is therefore necessary that any attempted resuscitation be directed to the circulatory as well as to the respiratory apparatus. Despite years of research, no explanation of the exact cause of death in these cases has been forthcoming. But one thing is certain: impairment caused by electricity will chiefly involve the circulatory system.

T. Fürst of Munich has made a study of the circulation of young male workers with regard to occupational selection. He was therefore able to furnish his audience an insight into the postwar biologic changes in the constitution of the average youth of trade apprenticeship age. Chronologically, the first phase of the change, chiefly characterized by impaired nutrition, coincides with the period directly following the war. In the second period, external constitutional impairments became particularly numerous. The third phase (covering the period from 1930 to 1936) was marked by an increase in functional disturbances of the circulatory and nervous systems. The number of these functional anomalies of the circulation is nearly double what it was in prewar years.

As A. Weber of Bad Nauheim pointed out, the great increase in fatal cases of circulatory disease, observed in all civilized countries, must be ascribed to a certain wear and tear on the organism. Heredity is a prominent pathogenic factor in hypertension but coronary sclerosis may be traced to the most disparate environmental factors as well. By suitable adaptation of living habits the progress of hypertension may be retarded, but it is questionable whether a hypertension once established can be reduced again to its latent stage. The hypertonic patient will ultimately die of renal insufficiency, apoplexy or progressive cardiac insufficiency unless death should take place earlier from an intercurrent illness. The cardiac insufficiency manifests itself gradually. If this condition receives timely treatment, working capacity and the life span can be prolonged for many years.

BELGIUM

(From Our Regular Correspondent)

July 25, 1936.

The Third International Congress on Air Service in Medical Emergencies

The medical air service association (l'Aviation sanitaire) met at Brussels to examine a series of problems relating to the organization of medical emergency air service in the colonies and to the cooperation of private and public agencies in the event of a disaster.

The third International Congress on Air Service in Medical Emergencies approved the recommendations of the International Committee for Research (which reflect the opinion of all students of the subject) with regard to the coordination of effort and the establishment of permanent collaboration between aeronautic and sanitary organizations.

The congress went on record as desirous that collaboration be established among all countries and that favorable progress in this direction be brought to the attention of the various national committees on emergency aviation by the International Committee of Research.

To hasten assistance in emergency cases in regions lacking transport facilities the congress recommended that international agreements guarantee a practical system of liaison between aircraft and the ground; also that arrangements be made to assure persons carried in aircraft the necessary medical attention both aloft and on the ground. To this end special instruction should be given the staffs of all aircraft and a permanently organized ground first aid service should be instituted at all flying fields. The third congress reiterates the recommendation of the first congress that any aircraft actually engaged in medical emergency flight should be subjected to a minimum of red tape incident to international travel (customs examinations, taxes and so on) and should be accorded priority in landing. The congress further recommends that special removable international insignia be adopted for the exclusive use of aircraft actually engaged in the fulfilment of an errand of mercy yet not qualified to display the insignia of the Red Cross.

Problems to be discussed by the fourth congress are: (1) instruction in the utilization of aircraft in medical emergencies in the colonies; (2) safety aboard aircraft on medical missions; (3) respective duties of the aeronautic and of the medical personnel in event of evacuation by aircraft.

The Injurious Effects of Heliogravure

Dr. Glibert's monograph recently appearing in the *Bruxelles médical* warns against a variety of occupational poisonings, including serious intoxications that occur among the employees of printing establishments engaged in the relatively new process of heliogravure. The noxious substances involved are hydrocarbons of the aromatic series that bear collectively the proprietary name of "Xylois." The most visible sign of trouble manifested by the employee is a slightly olivaceous pallor. The symptoms, during the static stage of the intoxication, are caused by the strong destructive action of the noxious substance on the patients' blood (aplastic anemia). The syndrome consists of intermittent attacks of vertigo, epistaxis and, what is more characteristic, gingival hemorrhage, "bruises" without any history of trauma, "spots" on the skin, abnormal and persistent pallor, and a feeling of depleted vitality. The exhibition of all or some of these symptoms by a worker in heliogravure should serve as an adequate warning and calls for a thorough hematologic examination. Therapeutic measures are in these cases thus far purely symptomatic and are identical with those used in aplastic anemias of any sort. It is impossible for the workers to take prophylactic precautions; a worker can hope to avoid the intoxication only by discontinuing his work. Prophylactic measures are possible, however, but it will be necessary to recommend their adoption through official channels.

Medical Service for Colonial Natives

The Queen Elizabeth foundation for providing the colonial native population with medical attention (Fondation Reine-Elisabeth d'assistance médicale aux indigènes [Foreami]) created in 1930, has received from the Belgian government and the government of the Belgian Congo an endowment of 200,000,000 Belgian francs. In addition the foundation has benefited by numerous voluntary donations, notable among which is the personal gift of Queen Mother Elizabeth herself.

The organization has as its objective the improvement of health and hygiene among the indigenous population in the Belgian Congo as differentiated from the European colonials. At present the Foreami in addition to caring for the sick in hospitals, dispensaries and ambulant units is taking a demographic census of the native population. The society also does social welfare work such as the care of mothers and children. To carry on, the foundation employs, in addition to native personnel, twenty-nine physicians, twenty-one white health officers, all graduates of the Institute for Tropical Medicine at Antwerp, and 125 white graduate women nurses.

Industrial Medicine

A government edict has reorganized the Industrial Inspection Service. As a unit of the general occupational protection authority a special corps of physicians has been assigned to protect the health of workers. This corps is formed from those members of the industrial medical service who hold a doctor's degree in medicine, surgery and obstetrics. The mission of the reorganized medical service is (*a*) to supervise and control the organization by industrial employers of instruction in hygiene for apprentices, the details of procedure to be established by edict; (*b*) to assist in effecting the proper occupational orientation of apprentices; (*c*) to make a detailed study of occupational physiology and pathology; (*d*) so to coordinate the information accumulated in this field that it may prove useful to all branches of welfare work; (*e*) to undertake at least once each month a medical examination of all those persons practicing occupations (in industrial plants or elsewhere) in which a recognized risk of contracting an occupational disease is present and, further, to maintain an up-to-date record of the health of each worker examined; (*f*) to preach the fundamentals of occupational prophylaxis to the workers and to promote practical sanitary measures among them; (*g*) to supervise the enforcement of legally prescribed regulations of a medical nature.

The Tenth Congress of the International Association of Physicians

The convention of the International Association of Physicians was held at Brussels. The president of the Belgian Medical Federation, Dr. Mattlet, before welcoming the foreign delegates, paid tribute, while the assembly stood, to the memory of Queen Astrid. Dr. Tornel, delegate from Spain and president of the tenth convention, likewise honored the memory of the queen of the Belgians, who had so well understood her rôle of sovereign and of mother. Dr. Tornel then gave his address of welcome. He commented on the questions appearing in the order of the day and took occasion to refute the opinion, prevalent in some quarters, that professional medical groups are exclusively concerned with the material interests of physicians. The speaker stressed present-day medicosocial trends: "It is not necessary," he said, "that the social concepts of the present should destroy those secular principles," and he further affirmed that, "if those principles are respected, the medical profession, far from opposing progress, will cooperate loyally in the best interests of the sick and of society."

Final Homage to Father Damien

The mortal remains of Joseph Veuster, known in religion by the name of Father Damien, the priest who sacrificed himself for the leprous of the Island of Hawaii, have finally, forty-seven years after his death, been returned to his native land. The king, the highest dignitaries of church and state and a crowd numbering thousands were all on hand to await the arrival of the training ship *Mercator,* which bore the body homeward. Father Damien was born at Tremeloo in 1840. In 1873 he sailed away to take up his voluntary exile at the leper colony on the island of Molokai. In 1876 he became aware that he himself had become infected with the disease and this he revealed in his daily discourse, no longer referring to the sick as "my brothers," but as "we who are afflicted with leprosy." He died in 1889. The casket was borne to the cathedral with great solemnity; 300 members of the obscure hero's family marched in the cortège. Later, passing by way of the little village of Tremeloo, the remains were brought to Louvain, where the interment took place.

BUENOS AIRES

(From Our Regular Correspondent)

July 2, 1936.

The Adrenals and Diabetes Mellitus

According to Houssay and Biasotti, adrenalectomy diminishes pancreatic diabetes in toads as much as hypophysectomy does. The effect produced by the removal of the hypophysis and both adrenals is not greater than that produced by the removal of only one of these glands. Adrenal cortex extract given to the animals with pancreatic diabetes, attenuated by adrenalectomy or hypophysectomy, fails to intensify the condition, which is intensified by administration of the anterior lobe of the hypophysis. This fact proves the veracity of the statement given by the authors in 1933 and 1935, according to which the hypophysis has a diabetogenic action in which the adrenals play no part. The reason of the attenuation of pancreatic diabetes after adrenalectomy is unknown. Probably the attenuation is due either to suppression of still unknown adrenal hormones or to inhibition of the hypophysis, but the problem is still unsolved.

Honors Conferred on Foreigners

The Academia Nacional de Medicina has appointed the following persons honorary fellows: Drs. George Marinescu, Harvey Cushing, J. B. Morelli, W. B. Cannon, A. Austregesilo, Lucas Sierra and Carlos Charlin.

Medical Lectures

Dr. J. B. Morelli of Montevideo lectured recently in Buenos Aires on polycystic lung and on giant emphysema, associated with a lesion of the pulmonary artery, in several members of a family.

Prof. G. Mouriquand of Paris will give, in the near future, a series of lectures on pediatrics and medical climatology. Dr. Fred H. Albee is expected soon to visit the several medical centers of Buenos Aires for a week.

Effects of Acetylcholine

Drs. Battro and Lanari performed intra-arterial injections of 0.04 Gm. of acetylcholine in human subjects. The injection at the femoral artery caused the following symptoms in the area supplied by the artery: intense redness, slight pain, perspiration, pilar erection and increase of the amplitude of the pulse wave. These modifications differentiate the presence of the spastic from that of the organic factor in diseases of the peripheral arteries because they appear in cases of arterial spasm but not in cases in which there are organic arterial lesions. Aside from the symptoms mentioned, the injection made at the humoral artery produces a contracture of the muscles of the injected forearm and hand which lasts from thirty seconds to a minute in patients suffering from myotonia and is absent normally. The injection made at the carotid artery in normal persons produces redness, perspiration and miosis of the side of

the face corresponding to the side on which the injection is performed and salivation, and, as general symptoms, motor agitation and sometimes conjugate deviation of ocular movements, nausea, bradycardia and irregularities of the cardiac rhythm with auricular fibrillation. There are no accidents complicating the injection, the effects of which rapidly disappear.

Deaths

Dr. Telémaco Susini, formerly professor of pathologic anatomy, who introduced bacteriology in Argentina, honorary member of the Academia Nacional de Medicina, has died, aged 83.

Dr. Arturo Zabala, head of the Hospital Rivadavia, ex-president of the Sociedad de Cirugía and an honorary member of the Academia Nacional de Medicina, is dead.

NETHERLANDS

(From Our Regular Correspondent)

July 25, 1936.

Granulocytopenia and Aminopyrine

The *Nederlandsch tijdschrift voor geneeskunde* has published a series of monographs by Vries, Groen and Gelderman on angina agranulocytotica—granulocytopenia. Over a three year period thirteen cases, several of them fatal, were observed in which the principal etiologic factor was the use of some medicament. In two of these cases the disorder followed an injection of arsphenamine, in nine absorption of aminopyrine or antipyrine was inculpated, in two doubtful cases the possibility of the use of barbital or its derivatives was not excluded. In five additional cases the manifestation followed precisely after the use of aminopyrine. The latter are reminiscent of similar cases described by American and Danish authors. A checking by the leukocytic formula should be regularly a part of any therapy that involves the use of antipyrine and aminopyrine.

Since the publication of these articles, numerous others have appeared in different countries. The foregoing authors themselves have recently made first hand observations of four new cases; two of these were fatal and one (that of a physician) was extremely grave. A. Polak Daniels and Heybroek have just described two other fatal domestic cases.

The arguments already advanced in support of an etiologic relationship between the use of aminopyrine and subsequent disturbances are substantiated by the established fact that in Denmark, where the medical profession has been induced to refrain from the prescription of the drug, not a single case of angina agranulocytotica has appeared. On the other hand, Madison and Squiers and Plum and von Bonnsdorff have observed several recovered cases in which a recurrence of manifestations (shivering, decrease in the number of white corpuscles) took place when the use of aminopyrine was renewed. The Council on Pharmacy and Chemistry in America and Adams in England have warned against its use.

In case of necessity, aminopyrine might be administered without detriment to the hospitalized patient who is under regular hematologic control. But the Dutch authors consider that in many cases the administration of this substance could be advantageously superseded by other procedures. In any event the unrestricted and frequently protracted use of aminopyrine by so many persons and for such a diversity of ailments should be prohibited. Furthermore, these authors are unanimously agreed that angina agranulocytotica is not an aminopyrine intoxication but rather an idiosyncratic manifestation in certain subjects. This hypersensitivity may be congenital or may erupt only after the addiction has lasted for a period of months or of years without apparent ill effect.

Experimental studies such as those undertaken by Miller and by Climenko perhaps offer something of an insight into the influence of aminopyrine on the bone marrow. But it would be foolish to expect the publication of such data to effect any substantial curtailment of the current abuses. This is a difficult problem, all the more so as the manufacturers of pharmaceutic "specialties" are wont to conceal the true nature of their products behind a varied and fantastic nomenclature.

Regulation of Medical Service for Aviation

New legislation (of Oct. 26, 1935) to govern the medical supervision of aerial navigation has just been made public. The following points are worthy of attention:

The physician attached to an airport has the right before the taking off or after the landing of an aircraft to make a medical examination of the passengers and crew whenever circumstances justify such a procedure. This examination must entail no expense to the person examined and it must take place at the same time as the usual police and customs inspections in order to obviate all delay and not to hamper the continuation of a journey.

The official in charge of an airport shall see to it that, excepting in case of the transportation of sick persons in a craft especially set aside for them, no person who presents the symptoms of any one of the contagious diseases mentioned in article I of the statute, on the suppression of contagious disease, shall be permitted to embark without the favorable recommendation of the physician attached to the airport. If the physician is momentarily absent, the authorities of the airport can defer the departure of the sick person pending the required recommendation of either the medical officer or some other physician. The contagious diseases in question are plague, cholera, yellow fever, exanthematous typhus and smallpox.

The competent authority of the airport will see to it that on arrival of an aircraft which is subject to inspection by the medical officer the craft shall remain in isolation until the examination has been concluded. Similarly, no aircraft will be permitted to leave an airport until the compulsory medical inspection has been carried out.

The members of the ground personnel at the field are allowed to furnish all such assistance as may be necessary to assure the safety of the craft and of the airport, but they must do their utmost to avoid contact with the crew or passengers.

If an aircraft liable to medical inspection should land elsewhere than at an airport, its commanding officer is compelled to communicate immediately with the burgomaster of the commune in which he finds himself. The commanding officer must see to it that his craft remains as isolated as the necessary assistance of third parties in the landing will permit.

Marriages

JAMES BRECKINRIDGE LOUNSBURY, Ann Arbor, Mich., to Miss Beatrice Thomen of St. George, S. I., New York, July 11.

HAVELOCK FRANK FRASER, Bellingham, Wash., to Miss Dorothy Bishop Cassel of Decatur, Ga., recently.

JOHN ALEXANDER, Ann Arbor, Mich., to Miss Emma Woolfolk of Detroit at Canandaigua, N. Y., July 11.

THOMAS LOWRY, Minneapolis, to DR. ELIZABETH PANET CHITTENDEN of New York, July 3.

BERNARD A. FLESCHE, Lake City, Minn., to Miss Kathleen Cecile Dohan of St. Paul, July 9.

LOUIS J. HIRSCHMAN, Detroit, to Mrs. Hanna C. Kellogg of Battle Creek, Mich., August 15.

CARL OSCAR LUNGERHAUSER of Newton, Ga., to Miss Helen Joines of Bainbridge, recently.

RICHARD P. STRONG to Miss Grace Nichols, both of Boston in London, England, July 23.

VICTOR ANDRE DIGILIO to Miss Elizabeth Leedes, both of Philadelphia, recently.

JOSEPH B. WOLFFE to Miss Evelyn Leedes, both of Philadelphia, August 9.

Deaths

Mayer Harris Lebensohn ✠ Chicago; Hahnemann Medical College and Hospital, Chicago, 1895; College of Physicians and Surgeons of Chicago, School of Medicine of the University of Illinois, 1903; formerly vice president and counselor of the Chicago Ophthalmological Society; instructor in ophthalmology at the University of Illinois College of Medicine, Chicago, from 1907 to 1914; for many years attending ophthalmologist to the Illinois Charitable Eye and Ear Infirmary, Mount Sinai Hospital, Orthodox Jewish Home for the Aged, and the Marks Nathan Jewish Orphan Home; aged 71, died, June 26, at the Mayo Clinic, Rochester, Minn., of embolism following a minor surgical operation.

James Franklin Ackerman ✠ Asbury Park, N. J.; New York Homeopathic Medical College and Hospital, 1890; past president of the Monmouth County Medical Society; formerly president of the board of education and library association; served in the secret service during the World War; fellow of the American College of Physicians; was chairman of the board of governors of the Marlboro (N. J.) State Hospital and member of the board of governors of the Allenwood (N. J.) Sanatorium and Monmouth County Hospital for Tuberculosis; aged 71; president of the board of governors of the Fitkin Memorial Hospital, Neptune, where he died, August 5.

Richard Olding Beard ✠ Minneapolis; Chicago Medical College, 1882; secretary from 1888 to 1903 and from 1906 to 1925 of the University of Minnesota Medical School, and director of the department of physiology from 1888 to 1912 and professor from 1888 to 1925, when he became emeritus professor; from 1925 to 1932 executive secretary of the health council of Minneapolis and Hennepin County; honorary fellow, formerly secretary, vice president and president of the Minnesota Academy of Medicine; aged 79; died, August 14.

James Burnside Wands Lansing, Tenafly, N. J.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; member of the Medical Society of New Jersey; past president of the Bergen County Medical Society; for many years member of the local board of health and medical inspector of the public school system; on the consulting staff of the Englewood (N. J.) Hospital; aged 78; died, June 9, in Paramus, of carcinoma of the sacrum and prostate.

Charles Everett MacDonald ✠ Major, U. S. Army, retired, Woodstock, Vt.; New York University Medical College, 1896; served in the medical reserve corps of the U. S. Army for many years; veteran of the Spanish-American and World wars; entered the medical corps of the regular army as a major in 1920 and was retired in 1930 for disability in line of duty; aged 62; died, June 20, in St. Elizabeth's Hospital, New York, of pneumonia, following an operation for gastric ulcer.

Edward Daniel Hurley ✠ Boston; Harvard University Medical School, Boston, 1904; member of the American Academy of Ophthalmology and Oto-Laryngology and the New England Ophthalmological Society; fellow of the American College of Surgeons; aged 54; consulting ophthalmologist to the Choate Memorial Hospital, Woburn, and St. Mary's Infant Asylum; ophthalmic surgeon-in-chief to the Carney Hospital, where he died, June 8, of coronary sclerosis.

Arthur Brown Chase ✠ Oklahoma City; Harvard University Medical School, Boston, 1892; professor of clinical medicine, University of Oklahoma School of Medicine; past president of the Oklahoma County Medical Society; councilor of the Fourth District of the Oklahoma State Medical Association; fellow of the American College of Physicians; aged 66; on the staff of St. Anthony's Hospital, where he died, July 20, of subarachnoid hemorrhage due to a fall.

Richard N. W. K. Horner ✠ Watkins Glen, N. Y.; University of the City of New York Medical Department, 1887; health officer of the consolidated health district, comprising the towns of Dix, Reading and the village of Watkins Glen; aged 73; died, June 17, in the Robert Packer Hospital, Sayre, Pa., of carcinoma of the esophagus and arteriosclerotic cardiovascular disease.

Titian J. Coffey, Los Angeles; University of Southern California College of Medicine, Los Angeles, 1898; University of Pennsylvania Department of Medicine, Philadelphia, 1899; fellow of the American College of Surgeons; at one time assistant professor of obstetrics at the University of California Medical Department; aged 62; died, July 31.

Philip Ball Moss ✠ Selma, Ala.; Johns Hopkins University School of Medicine, Baltimore, 1909; past president of the Dallas County Medical Society; recording secretary of the Y. M. C. A., board of directors; for many years state bacteriologist; on the staff of the King Memorial Hospital; aged 52; died, June 4, of heart disease.

Richard H. Edmondson, Morgantown, W. Va.; Hahnemann Medical College and Hospital of Philadelphia, 1890; member of the West Virginia State Medical Association; formerly city and county health officer; served during the World War; aged 69; formerly on the staff of the Monongalia County Hospital, where he died, June 20.

John Bunting Haines, Philadelphia; Jefferson Medical College of Philadelphia, 1916; member of the American Urological Association; on the staffs of the Hospital of the Protestant Episcopal Church, Philadelphia, and the Delaware County Hospital, Drexel Hill; aged 46; died, June 28, of cerebral hemorrhage and hypertension.

Walter Henry Mytinger ✠ La Fayette, Ind.; Ohio-Miami Medical College of the University of Cincinnati, 1912; served during the World War; medical officer of the Veterans Administration in Indianapolis; superintendent of the William Ross Sanatorium; aged 51; died suddenly, June 13, of cerebral hemorrhage.

Omer Atherton Newhouse ✠ Major, U. S. Army, retired, San Antonio, Texas; Rush Medical College, Chicago, 1900; served during the World War; entered the medical corps of the U. S. Army in 1920 as a major; was retired in 1934 for disability in line of duty; aged 59; died, June 5, in the Station Hospital.

Thomas W. Lauterborn, Montclair, N. J.; University of the City of New York Medical Department, 1880; at one time on the staffs of the Essex County Isolation Hospital for Contagious Diseases, Belleville, and the Essex Mountain Sanatorium, Verona; aged 77; died, June 13, of pulmonary tuberculosis.

William Thomas McKinney, Cave Spring, Ga.; Vanderbilt University School of Medicine, Nashville, Tenn., 1893; member of the Medical Association of Georgia; for many years on the staff of the Georgia State School for the Deaf; aged 71; died, June 3, in a hospital at Rome.

George Rustedt, Rutland, Vt.; University of Vermont College of Medicine, Burlington, 1876; member of the Vermont State Medical Society; formerly city health officer; aged 84; for many years on the staff of the Rutland Hospital, where he died, June 18, of uremia.

Attilio Francis Galasso ✠ Morristown, N. J.; Columbia University College of Physicians and Surgeons, New York, 1930; secretary of the Morris County Medical Society; clinical pathologist to the Morristown Hospital; aged 31; died, June 29, of coronary embolism.

Marietta Haslep, Indianapolis; University of Michigan Department of Medicine and Surgery, Ann Arbor, 1883; at one time a medical missionary in China; formerly member of the school board; aged 70; died, June 2, in the City Hospital, of a fractured humerus, due to a fall, and hypostatic pneumonia.

Carl Gilbert Lundquist ✠ Leola, S. D.; Rush Medical College, Chicago, 1919; past president of the Aberdeen District Medical Society; aged 52; died, June 26, in St. Luke's Hospital, Aberdeen, as the result of injuries received in an automobile accident.

Drayton Margart Crosson, Leesville, S. C.; University of Tennessee Medical Department, Nashville, 1883; member and past president of the South Carolina Medical Association; formerly state senator and mayor of Leesville; aged 77; died, July 16.

E. Earl Houck ✠ Du Bois, Pa.; Baltimore Medical College, 1906; fellow of the American College of Surgeons; on the staffs of the Du Bois Hospital and the Maple Avenue Hospital; aged 55; died, June 27, of coronary occlusion and arteriosclerosis.

William Haight Madison, Sylva, N. C.; Tulane University of Louisiana School of Medicine, New Orleans, 1929; member of the Medical Society of the State of North Carolina; aged 33; died, June 16, of a self inflicted bullet wound.

George Harold Jamieson, Oshkosh, Wis.; Marquette University School of Medicine, Milwaukee, 1927; member of the State Medical Society of Wisconsin; aged 36; died, June 15, of carcinoma of the lumbar vertebrae and bladder.

Emanuel Bernard Fink ✠ Chicago; Rush Medical College, Chicago, 1920; professor of pathology and bacteriology at the Chicago College of Dental Surgery; on the staff of the Cook County Hospital; aged 46; hanged himself, June 16.

Edward Joseph Novotny, Lorain, Ohio; St. Louis University School of Medicine, 1921; member of the Ohio State Medical Association; on the staff of St. Joseph's Hospital; aged 41; died suddenly, June 17, while playing golf.

Juniattus A. Fisher, St. Louis; St. Louis College of Physicians and Surgeons, 1899; member of the Missouri State Medical Association; aged 63; died, June 16, in the Missouri Baptist Hospital of carcinoma of the lung.

Dewey Aday, Bartlesville, Okla.; University of Arkansas School of Medicine, Little Rock, 1930; member of the Oklahoma State Medical Association; aged 37; died, June 9, of an accidental overdose of procaine hydrochloride.

Clayce Remine De Forest, Clarksburg, W. Va.; University of Maryland School of Medicine, Baltimore, 1920; aged 44; died, June 15, in the Hillsview Farms Sanitarium, Washington, Pa., of pneumonia and chronic nephritis.

Henry S. Wahl, Wausau, Wis.; Chicago Medical College, 1884; member of the State Medical Society of Wisconsin; aged 75; died, June 12, in a hospital at Kansas City, Kan., as a result of hypertrophy of the prostate gland.

Lucius Henry Hayman ⊕ Pasadena, Calif.; Rush Medical College, Chicago, 1878; member of the State Medical Society of Wisconsin; formerly a practitioner in Boscobel, Wis.; Civil War veteran; aged 90; died, June 3.

William Gardner Gabie, Seattle; McGill University Faculty of Medicine, Montreal, Que., Canada, 1907; member of the Washington State Medical Association; aged 57; died, June 25, of coronary thrombosis.

John Elmore Bailey, Middletown, Conn.; College of Physicians and Surgeons, Medical Department of Columbia College, New York, 1885; member of the Connecticut State Medical Society; aged 73; died, June 5.

Arthur Leo Curtis, Washington, D. C.; Howard University College of Medicine, Washington, 1912; aged 46; died, June 28, in Castle Point, N. Y., of chronic pulmonary tuberculosis and tuberculous laryngitis.

Harvey Peter Hess, Pine Grove, Pa.; Hahnemann Medical College and Hospital of Philadelphia, 1896; formerly bank president, and member of the school board; aged 64; died, June 22, of cerebral hemorrhage.

Charles M. Headrick, Plattsmouth, Neb.; College of Physicians and Surgeons, Keokuk, Iowa, 1876; College of Physicians and Surgeons of Chicago, 1896; aged 82; died, June 4, of hypostatic pneumonia.

Joseph M. Parker, Oxon Hill, Md.; College of Physicians and Surgeons, Baltimore, 1878; aged 82; died, June 9, in the Providence Hospital, Washington, D. C., of congestive heart disease and mitral stenosis.

James Ellsworth Holmes, Columbus, Ohio; Starling Medical College, Columbus, 1892; member of the Ohio State Medical Association; on the staff of the Grant Hospital; aged 72; died, June 19, of heart disease.

Andrew Douglas Carter ⊕ Philadelphia; University of Pennsylvania Department of Medicine, Philadelphia, 1895; aged 64; died, June 21, in Ocean City, N. J., of hypertension and arteriosclerosis.

S. Dugan Graves, Bastrop, La.; Louisville (Ky.) Medical College, 1904; member of the Louisiana State Medical Society; for many years deputy coroner; aged 51; died, June 28, of angina pectoris.

Samuel Blair, Apache, Okla.; Hospital College of Medicine, Louisville, (Ky.) 1887; member of the Oklahoma State Medical Association; aged 85; died, June 13, in a hospital at Lawton, of heart disease.

Charles P. Bacon ⊕ Evansville, Ind.; University of Pennsylvania Medical Department, Philadelphia, 1861; aged 99; died, June 18, of acute dilatation of the heart and hypostatic pneumonia.

William Edgar Williams, McBee, S. C.; Medical College of Virginia, Richmond, 1916; served during the World War; aged 46; died, May 24, in a hospital at Hartsville, of toxic hepatitis.

William Preston Haynes ⊕ Washington, D. C.; George Washington University School of Medicine, 1924; aged 36; died, June 29, of a ruptured esophageal varix and cirrhosis of the liver.

Ezra Leslie Meads, Loose Creek, Mo.; Bennett Medical College, Chicago, 1914; served during the World War; at one time county coroner; aged 43; died, June 11, of angina pectoris.

George E. Clements ⊕ Crawfordsville, Ind.; Rush Medical College, Chicago, 1900; served in the Canadian Army during the World War; aged 65; died, June 17, of cerebral hemorrhage.

Charles Albert Fisher, Los Angeles; College of Physicians and Surgeons, Los Angeles, 1913; member of the California Medical Association; aged 58; died, June 19, of heart disease.

Murdock Lloyd Davis, Allenton, Mich.; Trinity Medical College, Toronto, Ont., Canada, 1877; aged 86; died, June 3, in the University Hospital, Ann Arbor, of duodenal ulcer.

Frank Cramer Wright ⊕ Grove City, Ohio; Starling Medical College, Columbus, 1897; on the staff of the Mount Carmel Hospital, Columbus; aged 60; died, June 23, of heart disease.

Jacob Ritter Esterly, Reading, Pa.; Jefferson Medical College of Philadelphia, 1891; aged 62; died, June 21, in the Wernersville (Pa.) State Hospital, of chronic endocarditis.

John Isaac Green, Bath, S. C.; University of Georgia Medical Department, Augusta, 1891; aged 66; died, June 3, in a hospital at Asheville, N. C., of tuberculosis of the lungs.

William Moody Hunt, Murdo, S. D.; Cleveland Medical College, 1894; served during the World War; aged 70; died, June 18, of coronary thrombosis and cerebral embolism.

Frank Leslie Gilbert ⊕ North Stratford, N. H.; Tufts College Medical School, Boston, 1898; served during the World War; aged 62; died, June 24, of cerebral hemorrhage.

Frank D. Gray, Long Beach, Calif.; Medical College of Ohio, Cincinnati, 1880; formerly a practitioner in Fort Worth, Texas; aged 77; died, June 8, of chronic myocarditis.

John Wesley Nixon, Kansas City, Mo.; Marion-Sims College of Medicine, St. Louis, 1896; served during the World War; aged 65; died, June 13, in Excelsior Springs.

Ivory Campbell, Norene, Tenn. (licensed by Tennessee State Board of Medical Examiners in 1889); Civil War veteran; aged 91; died, June 6, of bronchopneumonia.

George Heller, Baltimore; Baltimore Medical College, 1897; aged 61; died, June 10, in the Johns Hopkins Hospital, of injuries received in an automobile accident.

Giovanni Grana, Rochester, N. Y.; Regia Università di Palermo degli studi Facoltà di Medicina e Chirurgia, Italy, 1894; aged 70; died, June 26, of myocarditis.

William Pancoast Blanton, Bowie, Texas; University of Louisville (Ky.) Medical Department, 1893; aged 63; died, June 10, of chronic myocarditis and nephritis.

Frank D. Fleury ⊕ Omro, Wis.; Ensworth Medical College, St. Joseph, Mo., 1908; veteran of the Spanish-American War; aged 60; died, June 16, of coronary disease.

Jesse H. King, Worthington, Pa.; Western Pennsylvania Medical College, Pittsburgh, 1887; aged 75; died, June 26, of chronic nephritis and cerebral hemorrhage.

Louis Canepa, New Orleans; Tulane University of Louisiana Medical Department, New Orleans, 1903; aged 55; died, June 20, of cerebral hemorrhage and myocarditis.

Jerome L. Artz, Camden, N. J.; Hahnemann Medical College of Philadelphia, 1881; aged 75; died, June 12, of chronic myocarditis and coronary thrombosis.

Emma Warner Demaree, Lincoln, Neb.; Northwestern University Woman's Medical School, Chicago, 1895; aged 84; died, June 14, of arteriosclerosis.

William Davis, Woodbridge, N. J.; Hahnemann Medical College and Hospital of Philadelphia, 1893; aged 70; died, June 2, of cerebral hemorrhage.

Pinkney Alexander Teat, Jackson, Miss. (licensed in Mississippi in 1906); aged 58; died, May 27, in a local hospital, of pneumonia.

John P. Blakely, Fort Smith, Ark.; Arkansas Industrial University Medical Department, Little Rock, 1893; aged 78; died, May 9.

Ernest L. Battelle, South Gate, Calif.; Chicago Homeopathic Medical College, 1886; aged 83; died, June 25, in a local sanatorium.

Lewis Nye Bump, Somerville, Mass.; Albany (N. Y.) Medical College, 1893; aged 68; died, June 5, of coronary thrombosis.

Francis J. Drake, Wellston, Ohio; Ohio Medical University, Columbus, 1894; aged 78; died, June 1, of arteriosclerosis.

Ora F. Thomas, Chillicothe, Ill.; Chicago Medical College, 1878; aged 81; died, May 27, of cholelithiasis and chronic pancreatitis.

James Thomas Gallagher, Boston (licensed in Massachusetts by years of practice); aged 83; died, June 30, of myocarditis.

Robert H. Miles, Lyndon, Kan.; College of Physicians and Surgeons of Chicago, 1885; aged 81; died, June 19, of senility.

Charles P. Taylor, Clarksburg, W. Va.; Baltimore University School of Medicine, 1893; aged 66; died, May 24.

Bureau of Investigation

RU-MARI

An "Arthritis Cure"—Essentially a Solution of Washing Soda

Recently many inquiries have been received by the Bureau of Investigation requesting information on a product that is sold in England and the United States under the trade name "Ru-Mari."

The following letters are typical:

From Los Angeles a physician writes:

"I am enclosing some literature on 'Ru-Mari' and would appreciate any information you may have on the product. Can you tell me whether a chemical analysis has been made on the product?"

"I Was Attacked by Arthritis—"

MR. HUGH WALPOLE

Famous English Author of "VANESSA" and other important novels, called to Hollywood from London to adapt "DAVID COPPERFIELD" to the screen, tells, in this unsolicited letter, how

Genuine

RU-MARI

(from the United Kingdom)

relieved his suffering and saved his writing career:

"When I was working at the Metro-Goldwyn-Mayer studios, I was attacked by Arthritis. I was ill for some weeks in Hollywood, then went to New York and was in a hospital there, getting worse all the time. I was so bad that I was taken on a stretcher aboard the Berengaria and attended by a doctor and nurse. When I arrived in London I was taken again on a stretcher to a nursing home. . . I had some fifteen doctors. Nothing gave me relief. I was told there was little if any chance I should ever be able to write again. The prospect was hopeless and dreary indeed, and the fearful torture continued night and day. . . Shortly thereafter a friend of mine introduced a bottle of liquid which he said had worked quite successfully with numbers of people. I took a dose that night and the next morning felt much better. Then I began taking RU-MARI in earnest. Within two weeks the swelling had gone down so amazingly that the specialists were astonished. . . That was a year ago, and I have had no touch of rheumatism of any kind during the year. This is an exact true account of how RU-MARI helped me."

Hugh Walpole

HUGH WALPOLE

● IF YOU SUFFER FROM ARTHRITIS, SCIATICA, NEURITIS

or similar ailments when caused by acid conditions, DO NOT DELAY another day before trying this new, scientific formula, developed by a physician in Ireland, and used extensively by the medical profession in Great Britain.

MR. LIONEL BARRYMORE

famous star of stage and screen, says of RU-MARI: "NOTHING IN MY EXPERIENCE HAS BEEN SO HELPFUL." Stricken with sciatica while filming a picture, Mr. Barrymore found that RU-MARI relieved his condition in a few days. This remarkable prescription is now available for the first time to sufferers in America, duty prepaid. Send $5.00 today for this amazing scientific preparation, or send C.O.D. plus a few cents postal charges.

Act Now to Relieve Torture!

Also from Los Angeles a hospital superintendent writes:

"My attention was called to a new proprietary preparation which is being marketed in California at the present time. The advertising matter supplied by the company contains testimonials from prominent members of the movie colony here . . ."

An inquiry from New York reads in part:

"Can you give me any information about a preparation called Ru-Mari (alleged cure for arthritis)? I have just received the enclosed circular in regard to it from Los Angeles, which, you will note, contains recent testimonials from Lionel Barrymore, Hugh Walpole, and others."

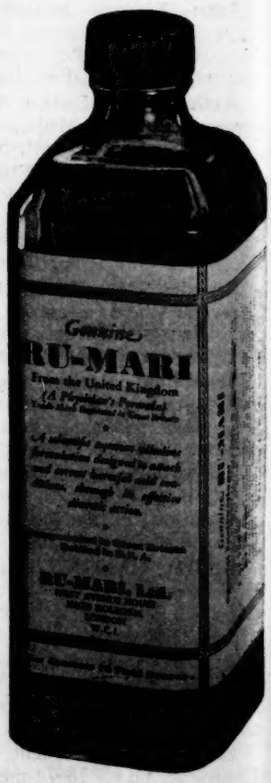
From Columbus, Ga., a physician inquires:

"I am writing to you regarding Ru-Mari, which is advertised to cure arthritis. It is made in England . . . Do you know anything about this? I should greatly appreciate any information you can give me regarding this product."

Ru-Mari is one of a list of products with the "Ru" prefix sold by Ru-Mari, Ltd., First Avenue House, High Holborn, London, W.C.1. Other Ru-Mari products advertised in England include "Ru-Mex," described as a "pain-relieving lotion for external application, including headaches, sprains, strains, sunburn, open wounds, bruises, etc.," "Ru-Malax—a pleasant liquid Cascara preparation," and "Ru-Mol—Vitamin Capsules (A & D)."

A booklet entitled "The Treatment and Cure of Rheumatoid Arthritis, Rheumatism and Allied Ailments," bearing the London company address, describes Ru-Mari as "strongly antacid in character and capable of destroying every disease germ in the body." In the same booklet appears the statement: "It cannot be too strongly emphasized that Ru-Mari is a cure and not merely a relieving agent."

The American version, "A Treatise on Arthritis and Allied Conditions," emanating from 3149 Wilshire Blvd., Los Angeles, considerably modifies the curative claims. The United States postal laws prohibit promoting through the mails schemes to obtain money by means of false and fraudulent pretenses. This booklet claims that "Ru-Mari is not the product of a mass-production laboratory. It is personally and carefully compounded by its discoverer, the thoughtful, gentle, kindly Irish practitioner, Dr. William Beggs, who dedicated himself to its formulation and perfection."



According to report, one Don Eddy of Los Angeles filed the original American trade style, and later was joined by Leslie Harris, Frank W. Wead, Joseph C. Cline, Felix F. Preeg, Mark B. Speer, Isabel Hopkins and S. V. Goldfarb as partners to form the American Ru-Mari Company of 3149 Wilshire Blvd., Los Angeles.

Don Eddy is reported to have been for several years a columnist on the Los Angeles *Examiner* and later general manager of Harry Langdon Productions. He was employed (1929-1935) by the Metro-Goldwyn-Mayer Studios as a writer. The Metro-Goldwyn-Mayer stationery is prominently featured in the Ru-Mari testimonial letter of cinema-actor Lionel Barrymore. ("Ars Gratia Artis!") Another testimonial letter widely circulated by the promoters in furthering the sale of their product is from the pen of Hugh Walpole, prominent English fiction writer.

The trade package of Ru-Mari, bottled in the U. S. A., modestly claims the nostrum to be "a scientific aqueous alkaline formulation designated to attack and correct harmful acid conditions, through its effective diuretic action."

Three original packages of Ru-Mari, purchased direct from the American Ru-Mari Company, were submitted to the A. M. A. Chemical Laboratory for examination at the request of the Bureau of Investigation. The Laboratory report follows:

LABORATORY REPORT

"Each bottle contained about 475 cc. of an amber-colored liquid, with a slight aromatic odor, saline and bitter taste, basic reaction to litmus, and with a specific gravity of 1.006 (25 C.). The liquid was clear with a few particles of suspended flaky material.

"Qualitative tests indicated the presence of the following: Chlorides, sodium, potassium, carbonates, and small traces of

tartrates, sulfates, nitrogen, and phosphates. Bromides, iodides, salicylates, acetates, heavy metals, nitrates, magnesium, calcium, neocinchophen, cinchophen, emodin-bearing (laxative) drugs, uva ursi, antipyrine, colchicine, cimicifuga, salophen, aminopyrine, capsaicin and pinene were not found.

"Quantitative determinations yielded the following:

	Per Cent
"Total solids (100 cc.)	1.14
Ash	1.06
Sulfated ash	1.52
Alkaline chloroform extract	0.0
Acid ether extract	0.07
Titratable alkalinity (calculated as OH^-)	0.18
Titratable carbonates (calculated as $CO_3^=$)	0.28
Sodium	0.37
Potassium	0.11
Organic material	0.04

"From the foregoing, it may be calculated that the product contains approximately 0.65 per cent sodium carbonate (Na_2CO_3, anhydrous) equivalent to 1.76 per cent hydrated sodium carbonate (washing soda) and 0.30 per cent potassium hydroxide (lye) with a trace of organic material.

"A product essentially similar may be prepared by dissolving 1.76 Gm. of washing soda and 0.3 Gm. of pure lye in water to make 100 cc. of solution."

Thus Ru-Mari is a typical nostrum, essentially an alkaline solution, advanced as specific for conditions in which it could not possibly have specific effects, and supported by testimonials from persons better known for artistic attainment than for medical knowledge or scientific judgment.

Correspondence

ELIMINATING ODOR OF GARLIC

To the Editor:—M. A. Blankenhorn and C. E. Richards (THE JOURNAL, August 8, p. 409) present the results of certain experiments which they interpret—quite erroneously—into a sweeping refutation of work previously reported by L. A. Greenberg and me (THE JOURNAL, June 16, 1935, p. 2160) demonstrating that the odor on the breath after eating onions or garlic arises from material retained in the mouth. Blankenhorn and Richards believe that the odor comes wholly from essential oil passed into the blood stream during digestion and aerated out in the lungs.

Their experiments were ingenious if incomplete. They gave garlic soup and garlic oil by stomach to a patient with stenosis of the esophagus and three hours later observed by sense of smell a garlic odor on the breath. To one of two patients with occlusion of the larynx they fed garlic salad and garlic oil; again some three hours later they noticed a fouling of the breath as it came out of the tracheal opening. These would appear to be conclusive demonstrations of their thesis that garlic odor reaches the breath wholly by way of the blood stream; but in reality Blankenhorn and Richards, in their eagerness to prove their point, have intentionally or unintentionally failed to quote a statement made in our paper thereby casting an entirely false interpretation on our work.

Our statement concerns the previous investigation of F. A. Lehmann (Untersuchungen über Allium sativum [Knoblauch], *Arch. f. exper. Path.* **147**:245, 1930), who gave garlic extract by stomach tube to rabbits and determined, by chemical analysis, the amount of the oil reaching the expired air from the blood stream. Concerning this work we said: "The doses of oil he used were enormous, from 4 to 5 cc. of the juice pressed from garlic and containing from 8 to 10 mg. of essential oil. This amount would be equivalent to 6 to 8 Gm. of the vegetable. Such a dose, given to a rabbit weighing 1.5 Kg., would correspond to 300 or 400 Gm. of garlic given to a man . . . the amount of oil appearing in the expired air was so slight as to fall within the limits of the error of the method of analysis, definitely less than 1 per cent of the oil appearing in the breath in spite of the massive dose that had been given. Lehmann's work really offers no support to the belief that the odor on the breath after eating ordinary amounts of onion or garlic comes from the blood by way of the lungs. . . ."

Blankenhorn and Richards (carefully avoiding quantitative methods) give no indication of the amount of garlic administered but only of the oil. They gave 400 mg. to their subjects before they could detect the odor on the breath after a lapse of three hours. They simply repeated Lehmann's old experiment, on which we had commented; 400 mg. of oil is the yield from one-half to 1½ pounds of garlic. We are willing, indeed anxious, to concede that any one eating a pound of garlic at one sitting may have the odor in the blood as well as in the mouth, but our point was, and still is, that no one eats a pound of raw garlic. Our experiments were carried out with amounts within reason and with such no appreciable amount of oil appears in the blood stream. We proved this point by administering to our subjects garlic sealed in gelatin capsules; the breath was not tainted and no oil could be found in it by chemical analysis.

The significant point, however, is the time elapsing between the ingestion of the garlic and the appearance of the odor. If the smell comes from the blood following digestion, minutes or hours must pass before the breath is tainted. This delay is contrary to common experience in eating onions; the characteristic odor appears immediately. In the experiments of Blankenhorn and Richards, some three hours elapsed even after the massive doses of garlic oil before the odor was detected on the breath.

Blankenhorn and Richards, with every facility at hand, did not carry out the obvious experiment—really a control for their experiments—of having their patient with esophageal stricture chew garlic and then spit it out. None of the essential oil could reach the blood stream but I can assure them that their patient's breath would nevertheless have smelled so strong that it would be unnecessary to call in disinterested witnesses to prove fouling—the whole hospital ward would have testified to it. I cannot understand why Blankenhorn and Richards failed to carry out this procedure unless they were more anxious to throw discredit on our work than to discover the facts. It is fortunately an experiment that any one can perform to prove to himself that the odor comes from the mouth and comes from there, not after a delay of three hours, but immediately.

Blankenhorn and Richards, scrupulously avoiding quantitative methods, depending wholly on the uncertain criterion of faint smell, and recording no observations as to whether or not their subjects' breaths were foul before the tests, have made no attempt to duplicate our perfectly simple experiments. Yet they have no hesitation in saying that the chloramine solution we find effective in destroying mouth odor merely "masked" the garlic smell. This they attempt to show by using a chloramine mouth wash eighteen hours after feeding an unstated amount of garlic!

Since publishing our work we have tested for deodorizing properties numerous mouth washes and find a diluted solution of sodium hypochlorite to be somewhat more effective than the chloramine we originally recommended. The hypochlorites destroy garlic oil in a test tube as well as in the mouth, but they have no persistent odor that would disguise the smell of garlic. Only those substances which actually break down chemically the odoriferous substance are effective deodorants. And this is not our conception of "masking" an odor. The hypochlorites have no effect whatever on the breath odor from alcohol, which definitely emanates from the blood stream.

HOWARD W. HAGGARD, M.D., New Haven, Conn.
Department of Applied Physiology,
Yale University.

Queries and Minor Notes

THE ANSWERS HERE PUBLISHED HAVE BEEN PREPARED BY COMPETENT AUTHORITIES. THEY DO NOT, HOWEVER, REPRESENT THE OPINIONS OF ANY OFFICIAL BODIES UNLESS SPECIFICALLY STATED IN THE REPLY. ANONYMOUS COMMUNICATIONS AND QUERIES ON POSTAL CARDS WILL NOT BE NOTICED. EVERY LETTER MUST CONTAIN THE WRITER'S NAME AND ADDRESS, BUT THESE WILL BE OMITTED ON REQUEST.

ARSPHENAMINE REACTIONS

To the Editor:—I have been treating a recently acquired case of syphilis in a healthy Negro weighing about 150 pounds (68 Kg.). I started him on 0.6 Gm. of neoarsphenamine and he became a bit nauseated. During the following week I repeated the dose and he had to go to bed with extreme joint pains and nausea and vomiting. This lasted several days and I had to discontinue its use. I then commenced a series of six injections of bismuth salicylate in oil with no untoward consequences. On their completion, his strongly positive reaction became negative Kolmer and plus-minus Kahn. I then tried to give him a series of bismuth arsphenamine sulfonate but ten minutes after the first injection (intramuscularly) he became nauseated and ill. This lasted for almost one hour. I immediately discontinued all arsenic and merely gave him a weekly injection of bismuth salicylate associated with 0.65 Gm. of potassium iodide three times a day. Is there any other arsenical I might safely try in this case or must I stick to bismuth? I see no advantage in adding mercury, since I feel that bismuth supplants it. Also, if I make him blood and spinal fluid negative under my regimen when shall I quit and what shall be his further care? Also, if on subsequent examinations he again becomes positive, what should be my procedure? In a nutshell, my patient has been unable to withstand a small dose of neoarsphenamine and also bismuth arsphenamine sulfonate intramuscularly. However, three doses of neoarsphenamine brought him down from 4 plus to plus Kahn. After about fifteen doses of bismuth salicylate in oil, his blood test shows 1 plus instead of ±, his Kolmer showing moderately positive against negative after the three doses of neoarsphenamine. In other words, continued treatment with bismuth salicylate alone shows a gradually returning positive blood test. That means he cannot tolerate small doses of arsenic, and bismuth alone apparently is doing him no good. I am wondering whether mercury injections would help him, and, if so, what procedure I should follow. Please omit name.

M.D., Maryland.

ANSWER.—It is difficult to identify the type of arsphenamine reaction from the description given. Only two types of arsenical reactions signify definite sensitization to the drug; namely, dermatitis and the blood dyscrasias. While there is no evidence of dermatitis in this case, it is possible that the extreme joint pains, nausea and vomiting lasting for several days may signify a blood dyscrasia. It is essential to be sure of this point because, if it is at all possible to do so, the patient's treatment must be continued with an arsphenamine.

The only other type of immediate reaction that tends to recur after repeated injections of the drug is the angioneurotic symptom complex usually manifested by the so-called nitritoid crisis. This reaction may be avoided by very slow administration of the drug or by the preliminary administration of epinephrine or atropine. The description given does not sound like the nitritoid crisis.

Mild gastro-intestinal reactions, lasting from a few hours to as long as twenty-four hours, may occur in approximately 50 per cent of patients treated with the arsenical drugs. They may be in part eliminated by regulation of the bowels, by omission of a meal immediately preceding treatment, and by a light meal after treatment. Such mild gastro-intestinal reactions that do not depend on an underlying cause, such as hepatitis, a blood dyscrasia or the angioneurotic symptom complex, should be disregarded in the treatment of a patient with early syphilis. It is so important to administer the arsenical drugs from the standpoint both of the public health and of the patient's ultimate outcome that the patient should be urged to put up with the minor inconvenience of such reactions.

Mapharsen, recently introduced into the treatment of syphilis, is a drug that probably does not cause the angioneurotic type of immediate reaction and causes gastro-intestinal reactions in a somewhat lower proportion of cases than the arsphenamines. It is suggested that this patient's treatment be recommenced with mapharsen. In order to rule out the possibility of a blood dyscrasia it would be wise to start with a very small dose, i. e., 10 mg., following which a white and differential count should be done at twenty-four hour intervals for the next three days. If the white count is significantly reduced, i. e., below 4,000, and if this reduction is particularly at the expense of the granulocytes, this should be taken as an indication that further administration of any of the arsenical drugs might produce agranulocytosis or aplastic anemia. If also there is any sign of bleeding from the gums or of cutaneous purpura, it may be assumed that the blood platelets have been damaged and that further arsenical treatment may cause a genuine and serious thrombocytopenic purpura. If, however, there is no change in the blood count and no bleeding, the dose should be cautiously increased by 10 mg. increments until the average therapeutic dose of 60 mg. is reached. If this can be done without producing serious reaction, further treatment should proceed by the method suggested by the Cooperative Clinical Group, with mapharsen substituted for arsphenamine; for example, courses of ten injections of mapharsen alternating with courses of from six to eight injections of bismuth salicylate, treatment being given continuously for a minimum period of eighteen months.

The present tendency of the blood serologic test to relapse to positive may be due to asymptomatic neurosyphilis, and the patient's spinal fluid should be tested promptly.

If the patient is really intolerant to the arsenical drugs and cannot take them because of dermatitis or a blood dyscrasia, and if the spinal fluid is negative, treatment must be continued with bismuth compounds and mercury alone. In view of the small amount of arsenical treatment so far given, the total duration of treatment should be from three to five years and during this period it should so far as possible be continuous with courses of intramuscular bismuth compounds alternating with courses of mercury by inunction. This amount of treatment should be given arbitrarily, regardless of when the patient's blood serologic test becomes negative.

If the spinal fluid is positive and if actually intolerant to trivalent arsenical drugs, it probably will be possible to use tryparsamide, a pentavalent compound, without difficulty.

Mercury by inunction, if properly used by the patient, is both safer and better than mercury by injection.

SYPHILIS IN CHILD AND MOTHER

To the Editor:—A young couple with their first born came to me about the baby because of what they termed running ears. They had consulted three other doctors and the child had been given local treatment for the condition of the ears. The baby was 3 months old, January 24. The child presented a picture of a feebly developed body, shriveled countenance, fissures about the angles of the mouth and the anus, bullae and eczematoid scales on the forehead and scalp. Snuffles was present and an otopyorrhea on both sides. The voice was harsh when crying. The child nursed poorly, had sores in the mouth, whined and fretted. Intermittent strabismus was present. The child was restless in sleep and fretful when awake. Occasional bleeding from the nose occurred. The blood Wassermann of the father was negative, of the mother 4 plus. The father gave a history of a soft chancre on the penis ten years previously; he was treated and reported cured by his doctor at that time. The mother gave no history of an infection that she knew of. Three reports from blood specimens for the father were negative. I began treatment of the infant with intramuscular sulfarsphenamine 0.1 Gm. twice weekly for two weeks, then weekly, and shall continue so for eight doses. Since treatment of the baby was begun, many symptoms have cleared and it is improving in weight and appearance. I also began treatment of the mother with sulfarsphenamine intramuscularly, 3 Gm. weekly. Under the circumstances found, would I be justified in treating the father, with three negative Wassermann tests, for syphilis? What can I do more to test for positive syphilis in the father so as to get to treatment at the earliest possible moment? Would a spinal puncture be justifiable as a further test? Please speak about the virtues of the various preparations that might be indicated in these cases other than what I am now using. Any other information bearing on these cases will be greatly appreciated. Please omit name.

M.D., Alabama.

ANSWER.—This inquiry deals with two fundamental problems: first, the treatment of congenital syphilis; second, the status of the father. In a new-born baby with syphilis considerable caution must be used in the administration of an arsphenamine, because not infrequently these infants have an overwhelming spirochetemia, involving particularly the liver. Under such circumstances the use of an arsphenamine preparation may result in a Hertzheimer reaction severe enough to prove fatal. As this child is apparently tolerating the arsphenamine satisfactorily its continued cautious use, intramuscularly, is warranted. When the sulfarsphenamine course is completed the addition of mercury to the therapeutic program in the form of mercury rubs, 2 Gm. under the abdominal binder, may be used. The alternate use of the sulfarsphenamine and the mercury should be continued for at least eighteen months. Sulfarsphenamine has produced blood dyscrasias and so the patient must be watched for such a complication. Bismuth arsphenamine sulfonate is another antisyphilitic remedy that may be used intramuscularly in infants and it has the advantage of combining the heavy metal bismuth with the arsenicals. The subsequent treatment program is dependent on the child's reaction to the treatment and later manifestations of syphilis.

The status of the father raises two points for discussion: Has he had syphilis and been cured of it? Did the mother acquire syphilis previous to marriage and he not become infected? To settle the first issue an examination of the spinal fluid is essential; if it is found to be negative in the presence of the repeatedly negative serologic tests, treatment is not necessary. He should, however, be placed on observation and be reexamined from time to time at yearly intervals to note whether or not he subsequently develops any evidence of the disease. In regard to the second phase of this question, if the mother had acquired her infection some time previous to her marriage she might have a syphilitic child and her husband not acquire the disease from her. This seems the least probable of the two hypotheses in view of the history of the father's having had a penile lesion some years before. In either instance, treatment of the father is not warranted now unless the spinal fluid is found to be positive. However, he should have annual reexaminations both clinical and serologic.

MILKY SERUM WITH LIPEMIA

To the Editor:—I have what seems to me to be a most unusual case of a girl, aged 11, whose blood when removed into a test tube appears normal for about the first three minutes of exposure and then begins to separate into a normal clot and an opaque milky serum which, when standing, separates in turn into a lower watery layer, taking up about five sixths of the total volume, and an upper layer of pure white, taking up the remaining sixth of the volume. I have been unable to find any cellular elements in either of these layers. The blood picture is as follows: red blood cells, 4,250,000 per cubic millimeter; white blood cells, 9,200 per cubic millimeter; hemoglobin, 75 per cent (Sahi); differential count: polymorphonuclears, 65 per cent; small lymphocytes, 25 per cent; large lymphocytes, 5 per cent; monocytes and transitionals, 5 per cent. The white cells appear normal and none were found suggesting a hyperplasia of the bone marrow or of other blood-forming organs. The child weighed 51 pounds (23 Kg.). There was a small psoriasis over the upper parts of the extremities and the lower portion of the abdomen. Also there were numerous small depigmented areas on the legs, which were said to be the sites of former ulcers. The tonsils were moderately enlarged and appeared to be chronically infected. The cervical glands were moderately enlarged. These were the only lymph glandular structures in the body that were palpable. The heart and lungs were clear. The spleen was enlarged about 3 cm. below the costal margin and was tender. The liver was enlarged to about the same distance below the costal margin and showed also a slight enlargement upward. There were two intractable ulcers on the shin of the right leg, and these were not punched out in appearance but rather seemed to have a hyperplasia of granulations. These ulcers were said to be of the same type from which the child had suffered frequently on previous occasions. The child had scarlet fever at the age of 5, complicated by bowel obstruction and acute pancreatitis requiring operation and drainage. Her mother says that her undernourishment, poor development and chronic ulcers dated from that time. The mother and father appear healthy. Their blood shows a negative Kahn test. There are four other children in the family, all of whom are in an average state of health. One of them has a congenital heart lesion, possibly a patent foramen ovale, which seems to be adequately compensated. Considering the peculiar reaction of the patient's serum on exposure to air, I hardly see how a Kahn test could be done on her blood. I would appreciate your giving me any clue to this case which you can. I have suspected aleukemic leukemia, but why should the serum appear milky in this phase of the disease? As I have pointed out, the fresh milky serum shows no cellular elements whatever. I should also have said that the child's urine is negative for albumin and sugar.

M.D., West Virginia.

ANSWER.—The milky serum is most likely due to a lipemia and is not indicative of a leukemia. Leukemia is furthermore excluded by the normal blood examination. An aleukemic myelosis or lymphadenosis is not characterized by such a milky serum and can be diagnosed only by splenic or bone marrow puncture.

The enlargement of the liver and spleen speak for some disturbance of the reticulo-endothelial system, such as Niemann-Pick's disease, or lipoid histocytosis. In this disease, which usually affects young female children, there is an accumulation of lipoids in the reticulo-endothelium of the liver, spleen and other organs. A lipemia may lead to increased deposition of lipoids in this system with hepatic and splenic enlargement. There may be bone changes.

Normally the blood contains from 0.5 to 0.8 per cent of fats and lipoids. After fat-rich foods this may be greatly increased, and after every fatty meal there may be enough fat in the blood to make it turbid. The distinctly cloudy serum in the case described speaks for a pathologic lipemia, although turbid plasma may sometimes be found with a normal lipin content. Lipemia occurs most often in diabetes, nephrosis and alcoholism, and less often in cirrhosis, jaundice and advanced tuberculosis. In diabetes the blood fat may rise to 20 per cent, and the cholesterol is also high, especially in acidosis. About 80 per cent of patients with diabetes have a blood fat above 0.67 per cent, which is the upper normal value. It is usually between 0.7 and 1.5 per cent, and increases with the severity of the disease and the increase in fat intake.

A careful study of the lipoid and cholesterol content of the blood should be made, and the skin lesions should be studied for possible lipoid or cholesterol deposition as in xanthomas. In this case diabetes and nephrosis are excluded by the normal condition of the urine.

INFECTION WITH SYPHILIS FROM NEEDLE WOUND

To the Editor:—1. Can syphilis be contracted from the prick of a hypodermic needle in the skin? 2. Can syphilis develop without an initial lesion? I am not referring to larger abrasions of the skin. 3. If no disease can occur without an initial lesion, why encourage future Wassermann tests? These things are happening frequently, but I have in my own experience or the experiences of my colleagues yet to have such a small injury show up later with a chancre. Our own technician has just recently had such an experience and is seeking all light available on the subject. If your authority has had personal experience or knows definitely of such experience among his colleagues, we will appreciate such information.

M.D., Kansas.

ANSWER.—1. Syphilis may be contracted from a prick in the skin of a hypodermic needle or of a surgical instrument, provided the needle or instrument has recently been used on a patient freshly infected with syphilis. The danger is greatest during the incubation period of syphilis and during the existence of primary or florid secondary lesions, but there is probably some danger from such contact with any patient who has had syphilis as recently as two years. Between two and five years the danger diminishes rapidly and after the fifth year of infection it is virtually nonexistent. The same comments apply to early congenital as to early acquired syphilis.

2. Syphilis can develop without an initial lesion, not only when the infection is acquired by such trauma as mentioned but also when it is acquired by the more usual forms of contact. There are numerous cases on record of direct blood stream infections in physicians, dentists and nurses following trauma with an instrument, in whom the first sign of infection was the secondary outbreak. Even the secondary lesions may be completely lacking or so trivial as to escape attention, the infection in its early stages being nearly or entirely symptomless.

3. The facts mentioned in paragraph 2 constitute the justification for a Wassermann follow up in a person exposed to syphilis by such trauma. The danger of infection, however, depends almost entirely on the duration of infection in the patient on whom the instrument was used.

4. The prophylactic treatment of such an injury should be immediate and should consist in laying open the puncture wound to the approximate depth of penetration of the needle, and the packing of the incised wound with 33 per cent mild mercurous chloride ointment, which is allowed to remain in situ for twenty-four hours.

FLUORINE IN WATER SUPPLIES

To the Editor:—It is my understanding that a great deal of work has been done on the problem of the fluorine content of raw water supplies and if you could throw any light on the following subjects it would be appreciated. 1. What amount of fluorine in the raw water supply is considered objectionable? 2. Would water with a fluorine content of 1.1 parts per million be harmful? 3. Would water with a fluorine content of 1.5 parts per million be considered a definitely inferior source to one with a fluorine content of 1.1 parts per million or 0.9 parts per million? 4. Is there any treatment that would lend itself to application, either before or after zeolite softening treatment, which would either eradicate or reduce the fluorine content of the water? It is my understanding that flocculation and precipitation in a lime-soda ash treatment plant sometimes reduces the fluorine content of the filtered effluent. Is this due to the precipitation of the colloids (which could be accomplished by floc formed by the addition of alum to either the untreated or the treated water) or is this due to chemical action in the lime-soda ash softening process?

LEE E. BRANSFORD, M.D., Jacksonville, Fla.

ANSWER.—1. H. T. Dean and Elias Elvove (*Pub. Health Rep.* **50**:1719 [Dec. 6] 1935) report that a mild type of mottled enamel is endemic in Colorado Springs, Colo., and in Galesburg and Monmouth, Ill., where the mean annual fluoride (F) content of the municipal water supplies based on monthly examinations for a period of about one year was respectively 2.5, 1.7 and 1.8 parts per million. They also report that at Pueblo, Colo., where the fluorine content of the public water supply was 0.6 part per million, the mottled enamel index in children was negative. Ryder (*American Water Works Journal*, November 1935) reports that water containing from 0.9 to 1.0 part per million will cause a dental defect known as mottled enamel, if consumed by children of susceptible age. For children particularly sensitive, it should be below 0.7 part per million.

2. Based on experience elsewhere, such a water might be harmful to children. It is possible, however, that the other chemical constituents of a water may have an effect on the harmful properties of fluorine and might well be investigated.

3. The harmful effects seem definitely to be related to the quantity of fluorine present in the water.

4. C. S. Boruff (*Indust. & Engin. Chem.* **26**:69 [Jan.] 1934) reports that:

> Removal of injurious quantities of soluble fluorides from drinking waters can be accomplished by dosing with alum, with subsequent removal of the floc by sedimentation and filtration. Under certain conditions contact beds of activated alumina or some other aluminum compound that may be developed for this purpose may prove feasible. Household drinking supplies could be treated by shaking the water with activated alumina in suitable containers. The decanted waters would be clear. Softening, with the addition of excess lime, causes the coprecipitation of considerable fluoride. The extent of the above treatments will depend on the fluoride concentration in the raw water and the amount of fluorides which will ultimately be established as the toxic limit allowable in water supplies.

R. H. McKee and W. S. Johnston (*Indust. & Engin. Chem.* **26**:849 [Aug.] 1934) report "the development of a method for removing fluorides from potable water by absorption by carbon. The process, however, has the handicap that at the time of treatment the water must be a p_H of 3 or less."

The practicability of using any of these methods is dependent on the chemical characteristics of the water to be treated. It would be wise therefore before adopting any treatment process to seek the advice of a competent chemist.

TREATMENT OF SYPHILIS

To the Editor:—A man, aged 39, developed a tender swelling on the anterior aspect of the right tibia at the junction of the middle and lower thirds in September 1933. The swelling gradually became larger and was diagnosed as osteomyelitis. A surgeon curetted the bone and inserted a pack. I saw the patient first in February 1934. At this time he was walking by means of a crutch and was unable to bear any weight on his leg. Although his history was entirely negative, a Kahn test showed his blood to be four plus to syphilis. Starting Feb. 17, 1934, he received weekly injections of neoarsphenamine 0.6 Gm. for ten injections, after which he developed an exfoliative dermatitis. This cleared up on the administration of sodium thiosulfate intravenously daily for four doses of 1 Gm. each. The patient was immediately placed on weekly injections of iodobismitol. He was able to walk without crutches following his fourth injection of neoarsphenamine. Iodobismitol injections were continued from April 1934 to December 1934 (thirty-two injections in all). The patient has been unable to take any form of arsphenamine, immediately developing an exfoliative dermatitis from neoarsphenamine, sulfarsphenamine, and even 0.1 Gm. of bismuth arsphenamine sulfonate. The blood Kahn test has been steadily four plus since onset of treatment. A spinal Kahn test was negative when taken in February 1934 and was again negative in October 1935. Since December 1934 the patient has been on biweekly injections of sodium bismuth thioglycollate. The blood Kahn test October 10 was four plus. Thorough physical examination with emphasis on the cardiovascular system, including roentgenograms, is entirely negative. The patient feels well; he weighs 180 pounds (82 Kg.) and his leg has never bothered him since his fourth injection of neoarsphenamine. For the last three months he has been on mixed treatment of mercury and potassium iodide orally, with biweekly injections of sodium bismuth thioglycollate. Will you please tell me if you think it is possible for the patient to transmit syphilis? What further treatment should be used, considering his intolerance to neoarsphenamine? Do you think he is Wassermann fast or has he had inadequate treatment? Please omit name and address. M.D., West Virginia.

ANSWER.—Resorting to the use of bismuth in this case has been good judgment, as the patient's intolerance to the arsenicals has been well shown by his reactions to the various arsphenamine preparations used. Further efforts to give an arsenical of any type are contraindicated because the persistence of the positive serologic reaction in itself is not sufficient reason to jeopardize the patient's future by further injections of arsphenamine. The fact that the cardiovascular examination was negative for evidence of aortic disease and that repeated examinations of the spinal fluid have been negative places this patient in either the latent syphilis group or the Wassermann-fast osseous syphilis group.

The likelihood is that the disease is of more than three years' duration, and with the treatment the patient has had thus far there is small chance that he is infectious. Further treatment should consist of repeated injections of the bismuth preparation, perhaps twelve injections to a course with intervals of three months between the courses. The bismuth treatment should be continued for the next three years. It is not infrequent to find a persistently positive Wassermann reaction in patients with osseous syphilis, and the continued bismuth therapy alone will often revert the serologic reaction to negative sooner than will combined treatment with arsphenamine and bismuth compounds. At the same time the bismuth compound will maintain the patient in a noninfectious state. The treatment to date has perforce been inadequate because of the patient's idiosyncrasy, and the continued use of bismuth compounds is the most potent means now at his physician's disposal to reverse the serologic reaction to negative.

NEUROSYPHILIS

To the Editor:—A man, aged 45, who first consulted me in September 1934, was awakened fourteen months ago by a severe pain in the left knee and in the tibia. It was a dull pain at first, then a sharp severe pain, which hits and fades. The skin is sensitive following relief from the pain. All but two attacks have come at night. The patient is sensitive to heat and cold. Heat causes pains in the eyeballs. He has heat and cold chills. Extra exercise results in an attack. There are dizziness and slight nausea. Examination showed fixed pupils. The patient is 5 feet 6 inches (168 cm.) tall and weighs 137 pounds (62 Kg.). The Wassermann and Kahn reactions of the blood are 4 plus; under treatment the blood remains the same. Treatment was as follows: In 1934 potassium iodide caused a reaction and had to be discontinued. Five doses of neoarsphenamine 0.3, 0.3, 4.5, 0.6 and 4.5 Gm. and of tryparsamide 2 Gm. were given during October and November. Because of reactions from November 1934 to January 1935, weekly doses of mercurosal 0.1 Gm., bismuth sodium tartrate 1.5 per cent or bismuth sodium tartrate, and mercuric salicylate were given. Treatment was omitted from Jan. 23 to March 20, 1935. The Wassermann reaction was 4 plus, the weight 143 pounds (65 Kg.). From March to April the patient received six doses of neoarsphenamine 0.6 Gm. and six doses of tryparsamide 2 Gm. During May a course of mercury and potassium iodide was given; there was too much reaction from the potassium iodide, swelling of glands occurring. The patient was given 100 doses of yellow mercurous iodide; the same nervous reaction occurred to this. The patient rested in June. In July three doses each of neoarsphenamine and tryparsamide were given. October, November and December 17, 0.1 Gm. of mercurosal was given. The patient has rested since Jan. 17, 1936. He takes doses of phenobarbital when restless. He complains very little at present. Once in a while a slight pain occurs. He weighs 143 pounds (65 Kg.) now. He is feeling good and does his usual work. There is slight pupillary reaction. The Wassermann reaction is 4 plus. I am seeking information regarding the future course. Would the malaria reaction be indicated in this case? I will appreciate any information as to treatment and drugs best to use. This is probably a Wassermann-fast case and I do not want to overtreat and certainly not undertreat. One item of interest that I failed to mention is that he had some thickening and discoloration of the palms of the hands. He thought it was the result of poison from varnish. It had been present for many years. This all cleared up under treatment. M.D., Iowa.

ANSWER.—This patient probably has neurosyphilis, as evidenced by fixed pupils and the subjective symptoms. A spinal fluid examination would yield valuable information as to the type of central nervous system involvement that is present. In all probability the patient will remain Wassermann fast irrespective of the kind or amount of treatment used. If the spinal fluid is strongly positive, a course of fever therapy is indicated. If malaria is not available, the intravenous use of a typhoid-paratyphoid vaccine sufficient to give a febrile reaction of 103 or 104 F. every third day might be considered. Fever therapy whether by malaria, vaccines or one of the newer fever producing machines should not be used without proper precautions under hospital supervision and only by those familiar with this type of therapy.

MANAGEMENT OF SYPHILIS

To the Editor:—A woman, aged 38, gives a history of having had syphilis for the past eleven years, which she contracted from her first husband. She shows no signs of the disease clinically but has a positive Wassermann reaction. She states that she never had any symptoms or signs in the entire period with reference to the skin or mucous membranes. She has received treatment irregularly by different physicians in the past. She states that she could never tolerate arsenic preparations intravenously on account of vomiting spells following the injections. She was given preparations of bismuth and arsenic intramuscularly at various intervals. At present the only finding is a positive Wassermann reaction. What is the prognosis? Please omit name. M.D., New York.

ANSWER.—With the information furnished it is difficult to answer. One would be in much better position to advise if one knew the results of the lumbar puncture and if one knew that cardiovascular syphilis had been ruled out. These are the two complications of late syphilis that are most damaging and yet which may remain hidden for some time. Therefore, the patient should be examined from those two points of view at once. If nothing is found, we would not be especially alarmed about the positive Wassermann reaction and would simply recommend a course of weekly injections of bismuth salicylate, a total of ten or twelve injections twice a year for possibly three years, giving potassium iodide between the courses of injections.

If involvement of these organs is found it would naturally require quite a different regimen and the advice would depend on the conditions discovered.

TREATMENT OF SYPHILIS

To the Editor:—A well developed man, aged 29, complained on his first visit of general weakness, lack of pep, and slight pains at times in the posterior urethra. Examination March 27, 1935, revealed slightly active reflexes, nervousness, irritability and a 4 plus Wassermann reaction. He has received fifty injections of neoarsphenamine of 0.9 Gm. each, fifty injections of bismuth sodium tartrate and potassium iodide regularly. Today he feels fine, without complaints, and the Wassermann reaction is 4 plus. What would you suggest? Continue as I am doing, alter the treatment in some way or stop treatment altogether?

M.D., New Jersey.

ANSWER.—This patient has had an excessive amount of treatment without serologic improvement. Treatment should be stopped altogether for a time and then a spinal puncture should be done. If there is evidence of neurosyphilis, tryparsamide treatment is indicated and later on fever therapy. If the spinal fluid is negative and the blood serum still positive after the rest period, some other arsenical may be substituted, either arsphenamine or mapharsen, alternating with courses of another bismuth compound such as the salicylate. The treatment of a Wassermann-fast case is discouraging but not hopeless.

PERSISTENT DERMATITIS

To the Editor:—For eight years I have been troubled with an obstinate skin condition. While I was taking my premedical work I earned some money during the summers as a painter and decorator. It was while I was doing this that a vesicular condition appeared on the fingers of both hands. Soon there was a peeling of all the skin to the dermis, causing weeping and considerable itching; in fact, the itching was so intense that the rubbing and scratching I did made it worse. With the aid of ointments, the condition improved somewhat. When I began the medical course it got worse, possibly because of the irritation caused by formaldehyde and phenol in which the cadavers were placed. I had the opportunity to get medical attention under a good allergy man. He tried many skin tests on me, all proving to be negative. Several Wassermann and Kahn tests also proved negative. The allergist made an autogenous vaccine of some pustules that formed and gave me injections twice weekly over a period of more than four months, without improvement. From that time there have been periods of improvement followed by a breaking down again of the skin of my fingers. As soon as I began my clinical work I made acquaintance with some of the best dermatologists in the country. With ointments and weekly x-ray treatment the condition cleared up nicely. I was tried on all sorts of ointments—sulfur, Whitfield's, tar, and so on. Tar (White's formula) seems to have been the best. The skin between my toes was examined and found to be in good condition. When I left school for my internship, the skin on all my fingers was as normal in appearance as could be. The first winter during my internship caused my hands to become dry and chapped. The skin condition reappeared and has been with me ever since. This is a terrible handicap, especially in surgical work. I know that water and soap do the skin no good, but I have to wash my hands after treating infections. At present the skin over the affected areas is dry, thick and cracked. There are several vesicles, some of which are open and cause an oozing with resultant itching. There are no other lesions anywhere on my body. Please omit name.

M.D., New York.

ANSWER.—The tops of the vesicles should be examined for ringworm fungi. If found, crude coal tar ointment or modified Whitfield ointment (3 per cent salicylic acid and 6 per cent benzoic acid in rose water ointment) alternated with soaks in 10 per cent solution of sodium thiosulfate, should be used. If no ringworm is present, the hands should be protected by the use of rubber gloves for pus dressings. On removing the gloves, one should bathe the hands in 50 per cent alcohol with 0.5 per cent salicylic acid and apply a lotion originated by William Allen Pusey:

	Gm. or Cc.
Liquid petrolatum	16.0
Oil of rose geranium	0.1
Oil of bergamot	0.1
Oil of lavender	0.1
Sodium benzoate	0.5
Powdered tragacanth	2.0
Mix and add water to make	120.0

First shake up the oils and powders, coating the inside of the bottle. Then add the water, one fourth the amount each time, and shake vigorously. This makes a thick emulsion, a small amount of which should be rubbed into the hands after each washing. At times a liberal amount of it, the excess being wiped off on a paper towel, may be substituted for washing. Use hot water as little as possible; always follow it, when used, with cold water and use the mildest obtainable soap. Each night anoint the hands liberally with 10 per cent boric acid in rose water ointment, petrolatum, or equal parts of wool fat and petrolatum, wearing cotton gloves.

In the effort to raise the threshold of irritability, calcium lactate 4 Gm., with an equal amount of lactose, dissolved in half a glass of warm water, may be taken two times a day, dilute hydrochloric acid being taken after meals. Sodium thiosulfate, 1 Gm. intravenously every other day, also may act favorably.

GLYCOSURIA OR DIABETES IN INFANT

To the Editor:—A girl baby, aged 8 months, weighing 14 pounds (6.35 Kg.) at present and 27 inches (68.5 cm.) in length has been ill since the latter part of November 1935, when the mother noticed that the baby no longer ate well and that she was losing weight. The weight at that time was 14½ pounds (6.58 Kg.). The infant was taken to the hospital for observation. She was a normal appearing and very active youngster, and nothing abnormal was found except a trace of sugar in the urine. The anorexia persisted, and also the loss of weight. The blood sugar was taken on two occasions and was 0.90 and 0.95. Three units of insulin was given twice daily with some resultant increase in appetite. The diet was chiefly solid food, junkets, puréed vegetables, orange and tomato juice, a total of 750 calories a day. Milk was taken from a glass, as it had been since 4 months of age. Food was taken at three meals a day. The baby was given halibut liver oil, vitamin B and G syrup, and orange juice. Gains were slow and uncertain. After three weeks the weight was only 14 pounds 9¼ ounces (6.63 Kg.). Physiologic solution of sodium chloride was given subcutaneously for three days, 120 cc. daily, and the weight went up to 15 pounds (6.8 Kg.). She was discharged from the hospital still showing an occasional trace of sugar and eating well only with insulin. Now in the past two weeks since coming home the weight has steadily dropped and is now 14 pounds. She no longer takes adequate calories, possibly 500 daily, and less than a pint of fluids daily, chiefly tomato juice. Insulin is being given in doses of 2 units three times daily. Can this be a true diabetes? Is the babe on an adequate regimen? I would like suggestions as to treatment and prognosis. Please omit name.

M.D., Michigan.

ANSWER.—More information would be extremely helpful before a diagnosis of diabetes mellitus could be made in this case. The age of the infant would not preclude such a diagnosis, as the condition has been known to occur in infants under 1 year old. The chief symptoms, as stated in the history, are anorexia and loss of weight. Anorexia would be an uncommon symptom in diabetes mellitus. The trace of sugar in the urine requires further investigation. As a general rule the earlier the onset of diabetes, the more severe is the glycosuria. It is stated that the infant shows an occasional trace of sugar in the urine. It would be wise to ascertain whether the substance in the urine causing the reduction is actually a sugar. Occasionally lactosuria occurs, and differentiation of lactose and dextrose can be made by fermentation tests. Alimentary glycosuria, pentosuria and renal glycosuria might be nondiabetic causes for the traces of sugar in the urine. The blood sugar estimations, 90 and 95 mg. per hundred cubic centimeters, are within range of normal (70 to 100 mg., average 90). Therefore no hyperglycemia has been demonstrated. A further investigation by means of sugar tolerance tests would seem indicated. A normal curve obtained by means of this test would rule out the diagnosis of diabetes mellitus. In a true diabetes, glycosuria and hyperglycemia are the essential phenomena. In the case under discussion there is a slight glycosuria and no hyperglycemia. Therefore, from the data presented, the diagnosis of true diabetes mellitus cannot be made. Other organic causes that might be responsible for the anorexia should be sought for and, if found, would determine the treatment and the prognosis.

TREATMENT OF FOOT INJURY

To the Editor:—A man came to my office March 23 with a history of injury to the right foot about an hour before I saw him, when he (a volunteer fireman) had been helping at a fire and a long ladder was dropped accidentally on his right foot. The skin was broken and the foot was sore at the point where the ladder struck. In my office there was found to be some swelling of the big toe and on the dorsum of the foot below the longitudinal arch; no fracture was palpated; the slight abrasion and place of injury were on the dorsal aspect of the foot on the distal end of the first metatarsal bone. Roentgenograms taken at once (anteroposterior and lateral) showed no fractures. Forty-eight hours after the injury there was only a little soreness and discomfort. Treatment consisted in elevation of the foot, no weight bearing, and alternate hot and cold compresses. Since the roentgen examination of March 23 showed no fracture, no cast was put on the foot. I was not satisfied and so on March 27 I asked for another roentgenogram, which revealed a greenstick fracture on the side of the cortex of the bone of the third and fourth metatarsal bones at the proximal end. There is no swelling or pain now. Is it now advisable to put on a cast? Our city carries no compensation insurance for such accidents. The city will pay the doctor's bill. My question is Have I done enough to protect the patient, the city and incidentally myself? Please omit name and address.

M.D., Michigan.

ANSWER.—A metal arch support of german silver or of aluminum covered with leather should be carefully fitted to the foot and should be worn for at least six weeks. No weight should be borne on the foot unless the arch support is being worn.

If it is impossible to obtain such a metal support, a plaster-of-paris support can be molded under the arch and bandaged on or fitted in the shoe.

It is necessary to take these precautions to avoid a possible painful disturbance of the mechanics of the foot.

POLIOENCEPHALITIS WITH FACIAL PALSY

To the Editor:—A girl, aged 5 years, became ill in November 1935 with what the parents thought was a severe cold. The child did not improve but developed also nausea, vomiting and constipation. Examination disclosed the conjunctivae injected, the nasal mucosa congested, the throat mildly injected, and facial paralysis on the left side, of supranuclear origin. Physical and neurologic examination was otherwise negative. She showed some improvement for three days and then became drowsy, had some rigidity of the neck, and all reflexes were increased. The temperature was 101 F. This phase lasted for five days. After the temperature fell a weakness of the flexors of the left foot developed, lasted for four days and left no apparent residual. The facial paralysis persists and is a source of worry to the parents. It is most noticeable when the child is cold or when she smiles or grimaces. There is no apparent muscular atrophy. Treatment consists of gentle massage three times daily, heat and potasium iodide. I have read the answer to the query on Bell's palsy in THE JOURNAL, February 29, page 727. Will electrical stimulation benefit this patient? Would operation be advisable? Please omit name.

M.D., Indiana.

ANSWER.—The patient apparently has had a central lesion of an inflammatory nature and has probably a polioencephalitis.

Electrical stimulation will do but little good in this case, since the lesion is central. The length of time already elapsed without further improvement indicates that probably the maximum amount of recovery has already occurred. There is no available treatment for such a centrally induced facial palsy.

PASSIVE TRANSFER METHOD IN ALLERGY

To the Editor:—The July 4 issue of THE JOURNAL on page 57 contained an answer to a question relative to the passive transfer method of testing in allergy work, which interested me considerably. Apparently the inquiry was stimulated by my recent article which appeared in the *Cleveland Clinic Quarterly*. The method is, of course, used only as an adjunct to two other methods of allergy investigation. I have utilized the passive transfer method for complete tests in over 200 individuals, the majority of whom were children. I believe that here it serves its greatest purpose and represents a distinct help in allergy investigation. The technic at the Cleveland Clinic has differed somewhat in the performance of such tests in comparison with that which you have outlined. We have not found it essential or advisable to dilute the serums, as this would preclude clear-cut reactions. We inject at least 0.3 cc. of the serum into each site for testing, and we do not consider 0.1 cc. as sufficient to sensitize the skin locally. If 30 cc. of blood is withdrawn from the patient to be tested, there will be from thirty-two to forty-two sites. To ensure complete sensitization of the skin with the serum, a period of forty-eight hours is required. On attempting to use the sites after twenty-four hours we have found the test results to be very unsatisfactory. We feel that only those sites which have not demonstrated any reaction can be used after the first tests have been made. On the occurrence of a definite reaction, the reagin at the particular site has been exhausted and is not satisfactory for subsequent testing. We have found it preferable to wait forty-eight hours after the first set of tests are made to ensure complete absorption of the antigen from the site. To enable the physician to know the exact location of the serum, a mark should be made at the site with a sharp scalpel, owing to the fact that it is impossible to mark the skin in any other way to determine definitely where the serum has been placed.

I. M. HINNANT, M.D., Cleveland.

VASOMOTOR RHINITIS

To the Editor:—In your reply to M.D., N. Y., re vasomotor rhinitis (THE JOURNAL, August 15, p. 521), you state "though injections of alcohol may be tried, that method is not recommended." A satisfactory experience with the alcohol injection extending over a period of seventeen years leads me to inquire why the method is not recommended.

In many cases the sensitization is local and whether the offending irritant reaches the sensitized cells of the nasal mucosa through the blood stream or directly by contact, relief can be had only by avoidance of the irritant, which is frequently impossible, or by desensitization of the tissues of the nasal cavities.

In the presence of a known allergin this may sometimes be accomplished by systemic treatment with injections of increasing doses of the specific provocative allergin if it is not too numerous and can be determined, or by the desensitization locally of the nasal mucosa by the injection of alcohol combined with phenol or by the surface application of pure phenol to the nasal mucous membrane. The results of this method of treatment have been so gratifying that I have discarded the tedious, expensive and unsatisfactory "trial and error" method of systemic desensitization.

While the alcohol-phenol method sometimes needs repeating, it seems frequently that the vicious circle is broken and the results are permanent. Many patients have gone from three to five years without a recurrence, and should a repetition of the treatment be necessary it is such a simple matter as not to be considered an objection to its use.

A word as to the pain involved in the injection method: A local anesthetic soluble in the alcohol must be added to the mixture, otherwise the pain is intolerable and seems not to be mitigated in the least by the preliminary use of cocaine or other local anesthetics.

J. G. ROBERTS, M.D., Pomona, Calif.

Medical Examinations and Licensure

COMING EXAMINATIONS

STATE AND TERRITORIAL BOARDS

ALABAMA: Montgomery, June 29-July 1. Sec., Dr. J. N. Baker, 519 Dexter Ave., Montgomery.

ARIZONA: Phoenix, Oct. 6-7. Sec., Dr. J. H. Patterson, 826 Security Bldg., Phoenix.

ARKANSAS: *Basic Science.* Little Rock, Nov. 2. Sec., Mr. Louis E. Gebauer, 701 Main St., Little Rock. *Medical (Regular).* Little Rock, Nov. 10. Sec., Dr. A. S. Buchanan, Prescott. *Medical (Eclectic).* Little Rock, Nov. 10. Sec., Dr. Clarence H. Young, 207½ Main St., Little Rock.

CALIFORNIA: Sacramento, Oct. 19-22. Sec., Dr. Charles B. Pinkham, 420 State Office Bldg., Sacramento.

COLORADO: Denver, Oct. 6. Sec., Dr. Harvey W. Snyder, 422 State Office Bldg., Denver.

CONNECTICUT: *Basic Science.* New Haven, Oct. 10. *Prerequisite to license examination.* Address, State Board of Healing Arts, 1895 Yale Station, New Haven. *Medical.* Hartford, Nov. 10-11. *Endorsement.* Hartford, Nov. 24. Sec., Dr. Thomas P. Murdock, 147 W. Main St., Meriden.

DELAWARE: Dover, July 13-15. Sec., Medical Council of Delaware, Dr. Joseph S. McDaniel, Dover.

DISTRICT OF COLUMBIA: Washington, Jan. 11-12. Sec., Commission on Licensure, Dr. George C. Ruhland, 203 District Bldg., Washington.

FLORIDA: Jacksonville, Nov. 16-17. Sec., Dr. William M. Rowlett, P. O. Box 786, Tampa.

GEORGIA: Atlanta, Oct. 13. Joint-Sec., State Examining Boards, Mr. R. C. Coleman, 111 State Capitol, Atlanta.

HAWAII: Honolulu, Oct. 12-15. Sec., Dr. James A. Morgan, 48 Alexander Young Bldg., Honolulu.

IDAHO: Boise, Oct. 6. Commissioner of Law Enforcement, Hon. Emmitt Pfost, 205 State House, Boise.

ILLINOIS: Chicago, Oct. 20-22. Superintendent of Registration, Department of Registration and Education, Mr. Homer J. Byrd, Springfield.

IOWA: *Basic Science.* Des Moines, Oct. 13. Sec., Prof. Edward A. Benbrook, Iowa State College, Ames.

KENTUCKY: Louisville, Dec. 2-4. Sec., State Board of Health, Dr. A. T. McCormack, 532 W. Main St., Louisville.

LOUISIANA: New Orleans, December. Sec., Dr. Roy B. Harrison, 1507 Hibernia Bank Bldg., New Orleans.

MAINE: Portland, Nov. 3-4. Sec., Board of Registration of Medicine, Dr. Adam P. Leighton, 192 State St., Portland.

MARYLAND: *Regular.* Baltimore, Dec. 8. Sec., Dr. John T. O'Mara, 1215 Cathedral St., Baltimore. *Homeopathic.* Baltimore, Dec. 8-9. Sec., Dr. John A. Evans, 612 W. 40th St., Baltimore.

MASSACHUSETTS: Boston, Nov. 17-19. Sec., Board of Registration in Medicine, Dr. Stephen Rushmore, 413-F State House, Boston.

MICHIGAN: Lansing, Oct. 14-16. Sec., Board of Registration in Medicine, Dr. J. Earl McIntyre, 202-3-4 Hollister Bldg., Lansing.

MINNESOTA: *Basic Science.* Minneapolis, Oct. 6-7. Sec., Dr. J. Charnley McKinley, 126 Millard Hall, University of Minnesota, Minneapolis. *Medical.* Minneapolis, Oct. 20-22. Sec., Dr. Julian F. DuBois, 350 St. Peter St., St. Paul.

MISSOURI: Kansas City, Oct. 21-23. State Health Commissioner, Dr. E. T. McGaugh, State Capitol Bldg., Jefferson City.

MONTANA: Helena, Oct. 6. Sec., Dr. S. A. Cooney, 7 W. 6th Ave., Helena.

NEBRASKA: *Basic Science.* Lincoln, Oct. 6-7. Dir., Bureau of Examining Boards, Mrs. Clark Perkins, State House, Lincoln.

NEW JERSEY: Trenton, Oct. 20-21. Sec., Dr. James J. McGuire, 28 W. State St., Trenton.

NEW MEXICO: Santa Fe, Oct. 12-13. Sec., Dr. Le Grand Ward, Santa Fe.

NEW YORK: Albany, Buffalo, New York and Syracuse, Sept. 21-24. Chief, Professional Examinations Bureau, Mr. Herbert J. Hamilton, 315 Education Bldg., Albany.

NORTH CAROLINA: *Endorsement.* Raleigh, Nov. 30. Sec., Dr. Ben J. Lawrence, 503 Professional Bldg., Raleigh.

NORTH DAKOTA: Grand Forks, Jan. 5-8. Sec., Dr. G. M. Williamson, 4½ S. 3rd St., Grand Forks.

OKLAHOMA: Oklahoma City, Dec. 9. Sec., Dr. James D. Osborn, Jr., Frederick.

OREGON: *Basic Science.* Portland, Nov. 21. Sec., Mr. Charles D. Byrne, University of Oregon, Eugene. *Medical.* Portland, Jan. 5-7. Sec., Dr. Joseph F. Wood, 509 Selling Bldg., Portland.

RHODE ISLAND: Providence, Oct. 1-2. Chief, Division of Examiners, Mr. Robert D. Wholey, 366 State Office Bldg., Providence.

SOUTH DAKOTA: Pierre, Jan. 19-20. Dir., Division of Medical Licensure, Dr. Park B. Jenkins, Pierre.

VERMONT: Burlington, Feb. 10-12. Sec., Board of Medical Registration, Dr. W. Scott Nay, Underhill.

VIRGINIA: Richmond, Dec. 9-13. Sec., Dr. J. W. Preston, 28½ Franklin Road, Roanoke.

WEST VIRGINIA: Wheeling, Oct. 12-14. State Health Commissioner, Dr. Arthur E. McClue, Charleston.

WISCONSIN: *Basic Science.* Madison, Sept. 26. Sec., Prof. Robert N. Bauer, 3414 W. Wisconsin Ave., Milwaukee. *Medical.* Madison, Jan. 12-14. Sec., Dr. Cornelius H. Cremer, Cashton.

WYOMING: Cheyenne, Oct. 5. Sec., Dr. G. M. Anderson, Capitol Bldg., Cheyenne.

NATIONAL BOARD OF MEDICAL EXAMINERS

NATIONAL BOARD OF MEDICAL EXAMINERS. *Parts I and II.* Sept. 14-16. Ex. Sec., Mr. Everett S. Elwood, 225 S. 15th St., Philadelphia.

SPECIAL BOARDS

AMERICAN BOARD OF DERMATOLOGY AND SYPHILOGY: Philadelphia, June. Sec., Dr. C. Guy Lane, 416 Marlboro St., Boston.

AMERICAN BOARD OF INTERNAL MEDICINE: *Written* examination will be held simultaneously in different centers of the United States and Canada in December. *Practical* or *clinical* examination will be given in St. Louis in April. Chairman, Dr. Walter L. Bierring, 406 Sixth Ave., Des Moines.

AMERICAN BOARD OF OBSTETRICS AND GYNECOLOGY: Written examination and review of case histories of Group B candidates will be held in various cities in the United States and Canada, Nov. 7. Sec., Dr. Paul Titus, 1015 Highland Bldg., Pittsburgh (6).

AMERICAN BOARD OF OPHTHALMOLOGY: New York, Sept. 26. Sec., Dr. John Green, 3720 Washington Blvd., St. Louis.

AMERICAN BOARD OF ORTHOPAEDIC SURGERY: Cleveland, Jan. 9. Sec., Dr. Fremont A. Chandler, 180 N. Michigan Ave., Chicago.

AMERICAN BOARD OF OTOLARYNGOLOGY: New York, Sept. 25-26. Sec., Dr. W. P. Wherry, 1500 Medical Arts Bldg., Omaha.

AMERICAN BOARD OF PEDIATRICS: San Francisco, Oct. 22-24. Baltimore and Cincinnati in November. Sec., Dr. C. A. Aldrich, 723 Elm St., Winnetka, Ill.

AMERICAN BOARD OF PSYCHIATRY AND NEUROLOGY: New York, Dec. 29-30. Application must be sent to the Secretary before Oct. 30. Sec., Dr. Walter Freeman, 1028 Connecticut Ave., Washington, D. C.

AMERICAN BOARD OF RADIOLOGY: Cleveland, Sept. 25-27. Sec., Dr. Byrl R. Kirklin, Mayo Clinic, Rochester, Minn.

AMERICAN BOARD OF UROLOGY: Chicago, Dec. 4-6. Sec., Dr. Gilbert J. Thomas, 1009 Nicollet Ave., Minneapolis.

Kentucky June Examination

Dr. A. T. McCormack, secretary, State Board of Health of Kentucky, reports the written examination held in Louisville, June 10-12, 1936. The examination covered 11 subjects and included 110 questions. An average of 70 per cent was required to pass. Eighty-four candidates were examined, all of whom passed. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
College of Medical Evangelists	(1935)	81, (1936)	81, 82
University of Illinois College of Medicine	(1935)		82
University of Louisville School of Medicine	(1935)	77, 81, 88, (1936) 78, 78, 80, 80, 80, 80, 81, 81, 81, 81, 82, 82, 82, 83, 83, 83, 83, 83, 83, 83, 83, 84, 84, 84, 84, 84, 84, 84, 84, 84, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 85, 86, 86, 86, 86, 86, 86, 86, 86, 86, 87, 87, 87, 87, 87, 88, 88, 88, 88, 89, 89, 91, 92	
University of Cincinnati College of Medicine	(1936)	85,* 88,*	88*
University of Pennsylvania School of Medicine	(1933)		82, (1936) 83.

Seven physicians were licenced by reciprocity from July 27 through August 3. The following schools were represented:

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Georgetown University School of Medicine	(1932)		Ohio
University of Georgia School of Medicine	(1935)		Georgia
University of Kansas School of Medicine	(1935)		Kansas
Louisiana State University Medical Center	(1936)		Louisiana
Central Medical College of St. Joseph, Missouri	(1897)		Missouri
Meharry Medical College	(1935)		Tennessee
University of Tennessee College of Medicine	(1934)		Tennessee

* This applicant has received the M.B. degree and will receive the M.D. degree on completion of internship.

Utah June-July Report

Mr. S. W. Golding, director, Department of Registration, reports the written examination held in Salt Lake City, June 29-July 1, 1936. The examination covered 10 subjects and included 100 questions. An average of 75 per cent was required to pass. Seventeen candidates were examined, all of whom passed. Three physicians were licensed by reciprocity and 2 physicians were licensed by endorsement. The following schools were represented:

School	PASSED	Year Grad.	Per Cent
University of Colorado School of Medicine	(1935)		79
George Washington University School of Medicine	(1934)		81, (1935) 84, (1936) 83*
Northwestern University Medical School	(1936)	83, 84, 84	
University of Maryland School of Medicine and College of Physicians and Surgeons	(1935)	81, 84	
Harvard University Medical School	(1935)		83
University of Nebraska College of Medicine	(1935)		80
University of Oregon Medical School	(1935)		82
University of Pennsylvania School of Medicine	(1935)	84, 86, 87	
University of Texas School of Medicine	(1935)		83
Marquette University School of Medicine	(1936)		78

School	LICENSED BY RECIPROCITY	Year Grad.	Reciprocity with
Rush Medical College	(1935)		Illinois
University of Louisville School of Medicine	(1935)		Kentucky
Washington University School of Medicine	(1934)		Missouri

School	LICENSED BY ENDORSEMENT	Year Grad.	Endorsement of
College of Medical Evangelists	(1936)		N. B. M. Ex.
Licentiate of the Royal College of Physicians, of the Royal College of Surgeons, Edinburgh, and of the Royal Faculty of Physicians and Surgeons, Glasgow	(1930)		N. B. M. Ex.

*License has not been issued.

Book Notices

Passive Vascular Exercises and the Conservative Management of Obliterative Arterial Diseases of the Extremities. By Louis G. Herrmann, A.B., M.D., Assistant Professor of Surgery, College of Medicine of the University of Cincinnati and the Cincinnati General Hospital. With a foreword by Mont R. Reid, M.D. Cloth. Price, $4. Pp. 288, with 84 illustrations. Philadelphia & London: J. B. Lippincott Company, 1936.

This work describes one of the most interesting developments in the field of peripheral vascular disease; a treatment by rhythmic alternation of environmental air pressure. In the introduction, general remarks are made concerning conservative treatment of obliterative vascular disease, the principles underlying passive vascular exercises, nature's methods of developing collateral circulation, the importance of local hyperthermia, and the control of pain. It is also pointed out that the vast majority of patients with obliterative arterial diseases of the extremities receive little or no active treatment until some complication such as infection or gangrene sets in. There is a fascinating chapter on the historical development of the use of suction to improve arterial circulation in the extremities, with illustrations of these primitive and cumbersome machines, from which the present types of apparatus gradually developed. This chapter represents a valuable contribution to the history of medicine. Next the physiology of peripheral circulation and the physiologic effects of changes in environmental pressure and temperature are discussed. This chapter is a clear, easily understandable summary of present knowledge as applied to the therapy by suction and pressure. One would like to see more direct evidence that the negative pressure actually sucks more blood into the treated extremity.

In the fourth chapter the mechanism of collateral circulation and its spontaneous and therapeutic development are studied. There follows an excellent description of the general management of peripheral vascular disease. Due emphasis is laid on the fact that passive vascular exercise is only one link in the chain of therapeutic procedures which are all directed toward an adequate collateral arterial circulation.

In the sixth chapter the basic mechanical principles of the passive vascular exercise apparatus, as developed for clinical purposes by Herrmann and Reid, are described. The author modestly describes the development of the present apparatus but fails to mention the tremendous amount of thought and energy, trial and error devoted to the development of more and more efficient devices until the present product was obtained. He then describes the technic of administering these treatments, carefully going into minute details, enumerating the reasons for failure to obtain satisfactory results, and establishing criteria to determine improvement.

In the eighth chapter the responses of various clinical entities to this form of treatment are discussed. Finally the proper application of this mechanical device is stressed and a routine procedure used in the Peripheral Vascular Clinic of the University of Cincinnati for the study of such cases is described.

While this monograph has been primarily written for the guidance of men who wish to employ the alternating suction and pressure therapy, it actually covers the entire diagnosis and treatment of obliterative peripheral vascular disease. This is rightly so, as nobody can suddenly understand peripheral vascular disease in all its aspects by simply becoming interested in an ingenious mechanical device. Undoubtedly the greatest merit of this book is that it affords a wide dissemination of knowledge concerning peripheral circulatory disturbances. This disease entity was previously recognized only in its terminal stages and treated by heroic and mutilating methods.

Because of the rapid development within the last four years of this apparatus from large, cumbersome and technically incomplete devices to the newer, rugged, small, portable machines it is to be hoped that even more simple and equally efficient methods will be presented in the future so that an even larger number of patients may be benefited by passive vascular exercise. The painstaking work and tireless energy that are represented in this monograph have already borne fruit all over the country. They have made doctor and patient conscious of peripheral vascular disease.

Adult Intelligence: A Psychological Study of Test Performances. By Theodore Weisenburg, M.D., Anne Roe, Ph.D., and Katharine E. McBride, Ph.D. Paper. Price, $1.40. Pp. 155, with 14 illustrations. New York: Commonwealth Fund; London: Oxford University Press, 1936.

The problem of exploring adult intelligence and characterizing it scientifically has been one that has confounded psychologists for years. The weakness of the standardized psychologic tests in investigating the intelligence levels and other capacities of adults has been one of the reasons why purely psychiatric and analytic procedures have been of more value to the clinician. The present volume makes no attempt to devise any new tests and, in a way, evades the determination of what constitutes an intelligent or an unintelligent adult. The problem of intelligence quotients and other expressions of the trait that are described as intelligence is not particularly emphasized. The tests that are used for giving intelligence quotients and mental ages are used only as part of the battery which these authors have compiled to deal with this problem. The reason for the present study lay in the approach which Dr. Weisenburg was making to the study of aphasia, the result of which study has previously been published and discussed in these columns; but Dr. Weisenburg and his associates were interested in finding out why some of the so-called aphasic reactions occurred frequently and in otherwise "normal" individuals. For that reason a number of tests of various sorts, intended to obtain a cross-section of adult test performances, were brought together and many interesting observations were obtained, which are reported in the present book. There is a good summary of earlier studies of intelligence tests of adults. The tests are described in another chapter and the distributions of the material in the samples are carefully tabulated and presented. One of the more interesting statements made is that sick persons in the hospital whose illnesses are not mental diseases (and who constitute the subjects in the present study) make excellent subjects for research on adult intelligence; most psychiatrists who are consultants to general hospitals would disagree with this. Any one with any experience with test material realizes that even a minor illness invalidates test results and that no amount of weighing can be made to obviate this factor. Nevertheless there seem to be some valid conclusions drawn in the present study and the evidence and careful study of the material that was obtained are well worthy of perusal by any one interested in the problem of examining adults intellectually. In their conclusions the authors point out the value of the various types of tests that they have used, and it is noted that the vocabulary test, the analytic test and the absurdities test, as well as the educational tests, were most useful. It is also found that abilities sampled by tests requiring the use of language remain fairly constant through the thirties and that only a slight decline is noted thereafter. In other tests there were found marked declines in ability after the thirties. There are a number of gaps in the material presented by these authors which will need to be filled in later but, as in the case of Weisenburg and McBride's work on aphasia, the study shows extensive use of accepted statistical and experimental technics and some fairly definite observations. There are good chapters on sex and age comparisons as related to the tests. Nevertheless, this is not a book suited for merely cultural reading but rather a monograph to be used by those faced with the problem of understanding factors involved in the presence or lack of intelligence in the adult.

Practical Aspects of Psychoanalysis: A Handbook for Prospective Patients and Their Advisors. By Lawrence S. Kubie, M.D. Cloth. Price, $2. Pp. 223. New York: W. W. Norton & Company, Inc., 1936.

The present volume causes one to wonder whether the author is not rash. He seizes by the forelock the factors which have laid psychoanalysis open to the present-day criticisms and discusses them. He does not try to defend psychoanalysis as a technic or to explain the theory of the science but rather attempts to show its practical aspects in the way in which one would try to show practical aspects in medicine when guiding a patient to an appropriate specialist for his particular disorder. Psychoanalysts have developed codes of treatment, of means of gaining admission to the field, and of making financial arrangements that are peculiarly their own and cannot be compared to similar codes found in the medical profession as a whole. Nevertheless the volume explains well why it is that psychoanalysis should be done only by those who are members of the psychoanalytic society of their particular community, why it is the patients have to make carefully thought out financial arrangements, and why the fees of psychoanalysts are so high. He discusses the attitude that the patient should take toward his treatment and toward his analyzer, and the attitude that should be taken by the family and by outside physicians toward this form of treatment. To those psychiatrists who have been admitted to the fold of psychoanalysis, the present volume will seem trite. To those who are outside the fold but are sympathetic, some of the material will seem controversial and so much will be accepted as the psychiatrist's sympathy permits. But it is likely that to those who are not versed in psychoanalysis the tone of the book will seem to be commercial, somewhat unscientific and somewhat ecclesiastical. The volume probably will be of aid in clearing up certain arguments which the patient who is able to be analyzed will have in his mind and should at least to some extent resolve doubts which the critical layman will bring up, often severe, and which often have laid open psychoanalytic schools to considerable criticism. Stylistically it is not particularly profound, and it is slightly defensive.

Endocrinologie. Par Noël Flessinger, médecin de l'Hôpital Ambroise-Paré. Collection des initiations médicales, publiée sous la direction du Dr. A. Sézary. Paper. Price, 20 francs. Pp. 152, with 19 illustrations. Paris: Masson & Cie, 1935.

This dissertation represents an attempt to present in very brief form the essentials of endocrine physiology, diagnosis and therapeutics. It is part of a series of treatises on practical medical subjects issued by the publishers; a forty page supplement to the present volume is devoted to advertisements of these and other books. About twenty-two pages are devoted to glandular physiology, a feat of compression that is a tribute to the author's courage but not to his erudition or critical judgment. The remainder of the work is concerned with endocrine dyscrasias, including a final chapter on therapy. One notes with apprehension the irrational character of many of the glandular products recommended by the author for clinical use.

Comparative Psychology: A Comprehensive Treatise. Vertebrates. By Carl J. Warden, Ph.D., Assistant Professor of Psychology, Columbia University, Thomas N. Jenkins, Ph.D., Assistant Professor of Psychology, New York University, and Lucien H. Warner, Ph.D., Research Associate, Department of Zoölogy, Pomona College. Psychology Series. Albert T. Poffenberger, Ph.D., Editor, Professor of Psychology, Columbia University. Cloth. Price, $4.50. Pp. 560, with 80 illustrations. New York: Ronald Press Company, 1936.

In a review covering the previous volume of this thorough work on comparative psychology it was pointed out that the material was systematically assembled and that the volume would be of great value to naturalists, general psychologists, and possibly the psychiatrist who was interested in cultural matters closely allied to his own field. While the behavior of fishes, birds and reptiles, to which the present volume is devoted, probably has no direct bearing on the problems of psychologic medicine, there are types of behavior paralleling the human carefully studied here. The authors are planning to analyze, systematize and describe comparative psychology in three volumes. The first volume, on principles and methods, has already appeared. The volume on plants and invertebrates should soon be in the hands of the public, and the present volume deals with the psychology of the vertebrates. In the same way in which biologists have recapitulated the history of the race in the fetal history of the individual, just so one can see in this study a recapitulation of behavior development through the various vertebrates until the behavior of the primate closely approaches that of the human infant. Each chapter is devoted to a single class, and in the chapter one finds emphasis placed on receptivity, and locomotion and other reactive capacities. Whenever possible there is some discussion of inactive states, modified behavior, and escape reactions; and, as the mental processes become more complicated there are cited numerous examples of such reactions as multiple choice, delayed reaction, reaction experiments, education of animals for service, the use of tools and other interesting phenomena. The volume is well documented, several thousand references being given. It should prove to be a valuable source book to the biologist and the physiologist. Its value to the general physician and even to the psychiatrist appears to be more obscure.

Ätiologie und Therapie der Varizen und des varikösen Symptomenkomplexes. Von Dr. med. habil. Felix Jaeger, Oberarzt der chirurgischen Universitätsklinik, Berlin. Mit einem Geleitwort von Prof. Dr. Georg Magnus. Paper. Price, 6.40 marks. Pp. 76, with 48 illustrations. Leipzig: Johann Ambrosius Barth, 1936.

This is a small, clearly written pamphlet on the etiology and treatment of varicose veins and the varicose syndrome, based on the large material of the outpatient department of the surgical clinic in Berlin. There were about 1,500 such patients a year. The clinical picture is described, with excellent reproductions of photographs. Nothing is added to the well known theories about the causes of varicose veins except the emphasis on a hereditary weakness of the venous wall and the fact that valvular incompetence is only a secondary phenomenon. In the treatment the author advocates the use of salt and sugar solutions without preliminary ligation of the saphenous vein. A follow up of results showed 11.8 per cent recurrences and 21.8 per cent failures, leaving 66.4 per cent permanent cures. Even among this last group only 12.9 per cent had perfect results, whereas in 53.5 per cent the cosmetic result was poor, as the varices were palpable or visible as hard thrombosed cords. However, these patients were satisfied, as their complaints were relieved. In spite of these modest results, the author does not advocate high venous ligation. In the last chapter some anatomic studies are presented which reveal the rather startling fact that the communicating veins and deep veins may also be affected by varicosities and that the involvement of the venules, especially above the inner malleolus, is responsible for the pigmentation, eczema and ulceration at this site. This presentation is an honest picture of the methods used and the results obtained in the Berlin surgical clinic. As such it may be recommended to men interested in the subject of varicose veins. It does not contain any new ideas or any indication of progress and sadly differs from past publications of this clinic.

Handbook of Physical Therapy. This Volume Contains Articles by Various Authors That Have Been Adopted and Authorized for Publication by the Council on Physical Therapy of the American Medical Association. Second edition. Cloth. Price, $2. Pp. 436, with illustrations. Chicago: American Medical Association, 1936.

This handbook contains articles that have been accepted for publication by the Council on Physical Therapy of the American Medical Association. Several members of the Council have one or more articles in it. This is not a book for specialists —it is a handbook for the student, technician and general practitioner. The purpose is to acquaint the physician and surgeon with a therapy that will aid in arriving at a cure or relieving the disabled and uncomfortable patient. The field of physical therapy is covered in a concise manner, with necessary details given adequate exposition. There are sufficient illustrations, photographs and graphs to aid the reader. Charts, with the illustrative and legendary features carefully attended to, afford excellent methods for teaching students and therapists. The chapter on body mechanics and posture is of definite merit. It presents the standard posture charts as well as methods of training in different age groups. All the chapters on physical agents and methods and their clinical application are presented in a scientific manner, revealing a strong adherence to facts and deductions from proper experimentation.

Fotografía del estómago: Sus aplicaciones en el diagnóstico del cáncer del estómago. Por el Dr. Herbert Hofmann. Paper. Pp. 127, with 104 illustrations. Buenos Aires. Aniceto Lopez, Imp., 1936.

This monograph unfortunately does not present adequately the progress made in gastrophotography by such workers as Garin and Bernay of Lyons and Rehfuss of Philadelphia in the six years since the papers of Aschner and Ehrentheil (1930) and the books of Bécart and of Bernay (1931). The author has worked with Heilpern's gastrophotor; the results shown are so poor and unconvincing as to discourage every one. The well known "lunar landscapes" are shown in numerous photographs but they obviously are not clear or intelligible pictures of either the normal or the pathologic mucous membrane. The discussion is not critical. The apparatus itself has been well described and a discussion of its optical capacity attempted. Presumably the author was not familiar with the critical literature comparing gastrophotography, gastroscopy and the x-ray relief technic, for if he were he would scarcely have published this book. The difficulties of the optical system have not been surmounted as well in the instrument of Heilpern as they have in that of Garin and Bernay or the modifications of Rehfuss. The two main objections to gastrophotography, however, have not been mentioned by the author: namely (1) the impossibility of "aiming" the exposure and hence of knowing which part of the gastric mucosa is shown in the picture, and (2) the impossibility of obtaining films sensitive enough to bring out the slight differences in the color of the gastric mucosa, ranging as it does from yellow to orange-red and red.

The Normal Diet and Healthful Living. By W. D. Sansum, M.D., Chief of the Staff of the Sansum Clinic, R. A. Hare, M.D., Member of the Staff of the Sansum Clinic, and Ruth Bowden, B.S., Dietitian of the Sansum Clinic, Santa Barbara, California. Cloth. Price, $2. Pp. 243. New York: Macmillan Company, 1936.

Several years ago Dr. Sansum published a little book called "The Normal Diet," which proved to be one of the most successful of the popular treatises on the subject. It was succinct, sensible and understandable. That brochure has been expanded into the present volume and the same characteristics have been preserved. Most of the emphasis is placed on diet and its manipulation in the management of disorders of nutrition and the correlated functions of digestion and elimination—subjects in which Dr. Sansum has been interested and in the treatment of which his success is well known. Chapters on allergy, underweight and overweight, the care of the teeth and bacterial infection are new, as well as a chapter on a survey of methods of treatment which rapidly reviews the "many forms of treatment which have found acceptance in the practice of scientific medicine. The authors review these briefly in the hope that the reader will understand more of the care he may have under the physician of today." This chapter reviews briefly but ably rest, physical therapy, psychotherapy, drugs, vaccines, gland extracts, surgery, orthopedics and nursing. It is somewhat surprising to find no discussion of diabetes. Some of the opinions expressed are the following: Fatigue and the afternoon lag are associated with low blood sugar, and carbohydrate in quickly assimilable form will give relief. Pulpless teeth, even when they show no x-ray changes, are usually infected. The increase in obesity is due to the increase in the consumption of fats in this country. Food is our best source of vitamins, and if the diet is well balanced there is little need of using artificial products. The vitamin concentrates so frequently available today should be used only on the advice of a physician.

Roentgenographic Technique: A Manual for Physicians, Students and Technicians. By Darmon Artelle Rhinehart, A.M., M.D., F.A.C.R., Professor of Roentgenology and Applied Anatomy, School of Medicine, University of Arkansas. Second edition. Cloth. Price, $5.50. Pp. 431, with 183 illustrations. Philadelphia: Lea & Febiger, 1936.

The new edition of this work affords an opportunity to make anew a favorable review of the successful effort of the author to provide a satisfactory textbook of roentgenographic technic. The technical procedures are fully described, having in mind the needs of x-ray technicians, medical students and classes of radiologic technic and those physicians who do some technical roentgenographic work for themselves. After a brief section on electric currents, x-ray machines, tubes and dark room equipment, there is listed a series of introductory experiments which it would be wise for every student of radiographic technic to follow through. Such experiments do more than any amount of reading to fix in mind the physical principles on which successful roentgenographic technic is based. The technic of roentgenography of the various anatomic divisions of the body is then taken up seriatim, with abundant text and numerous illustrations. The book is commendable for the purpose set forth in the author's foreword.

L'année thérapeutique: Médications et procédés nouveaux. Par A. Ravina. Dixième année, 1935. Paper. Price, 18 francs. Pp. 195. Paris: Masson & Cie, 1936.

The 1935 French Year Book on Therapeutics is divided into two parts. Part 1 deals with progress in the treatment of diseases and symptoms. Part 2 takes up therapeutic methods and technics. It may be recommended to the physician who has a reading knowledge of French, as this annual naturally covers the current French literature better than the reviews published in other countries.

Creative America: Its Resources for Social Security. By Mary van Kleeck. Cloth. Price, $3. Pp. 353. New York: Covici-Friede, 1936.

American industrial history and current conditions are presented from the point of view of a conflict between "creative America" and the possessors of capitalized wealth. It is argued that the domination of the possessors is responsible for restricted production and the consequent poverty of the "creators," and that the removal of this domination and organization of industry, on the basis of scientific management, would provide plenty for all.

Bureau of Legal Medicine and Legislation

MEDICOLEGAL ABSTRACTS

Radium Poisoning: Liability of Employer.—Irene La Porte was employed by the defendant radium corporation from May 1917 to December 1918 and for about six weeks in 1920 to paint numerals on watch dials with a luminous paint containing, among other ingredients, radium sulfate. She applied the paint with a camel's hair brush, which she pointed with her tongue and lips. In the latter part of 1927, approximately seven years after she left the employ of the defendant, she first suspected that she might have radium poisoning, but in the early part of 1928 her dentist and her physician assured her that she did not. In October 1930 she began to have pains in her legs and joints, and her condition was definitely diagnosed as radium necrosis. She died in June 1931, and an autopsy disclosed the cause of death to be osteogenic sarcoma of the pelvis due to radium poisoning. About a year later the plaintiff, as administrator of the estate of the deceased, sued the defendant to recover damages. When the defendant corporation pleaded the statute of limitations, the plaintiff instituted the present suit in the United States district court, D, New Jersey, to enjoin the defendant from pleading the statute, on the ground of equitable fraud.

There is no question, said the United States district court, but that dial painters, at the time the deceased worked in the defendant's factory, ingested and breathed radium sulfate. The dial painters were protected neither by special methods or devices nor by scientific ventilation. In the light of the knowledge of today it is tempting to create the thought that the defendant must have been negligent in some way. Today, industrial methods which the defendant then employed would not be merely negligent but criminal. But, observed the court, this case must be decided on the facts as they existed in the light of the knowledge of 1917 to 1920. The important factual question is to determine how much the scientific and medical world and the defendant then knew about the industry. Even today, the court said, problems concerning radium have hardly been touched. A decade and more ago theories presently accepted were in a stage of controversial experimentation or unknown. Several writers, as early as 1913, suggested that radium salts which were not eliminated from the body would eventually be deposited in the bone structure and there replace the calcium and actually become a part of the structure in the form of radium sulfate. This was theory and there were no computations at that time to indicate what percentage of a given amount of the soluble or insoluble salt taken internally would eventually reach the bone.

In 1917 many dangers to the human body from radium and radium emanation were recognized. Long exposure to emanation, irradiation and x-rays had resulted, among a few technicians and scientific men, in fatal or dangerous injuries. But, the court observed, the knowledge existing in 1920 concerning radium was so colored with conjecture and theory that it is now impossible impartially and reliably to rationalize it. The evidence was clear that the defendant was utterly ignorant of the harmful effects attendant on its factory process until 1924, when its attention was directed to an alleged case of radium necrosis suffered by one of its former employees. At that time it sponsored an investigation into the situation which developed little information of value. Following this and other investigations, however, an article was published in THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION (Dec. 5, 1925, p. 1769) entitled "Some Unrecognized Dangers in the Use and Handling of Radioactive Substances," by Dr. Harrison S. Martland. This article first established the occupational hazard in the dial painting industry.

Considering the matter in the light of knowledge existing in 1920, said the court, it is difficult to understand how the defendant can be said to have perpetrated a fraud when it, a commercial enterprise, failed to draw inferences which no physician had ventured, to the effect that its industry was suicidal to its workers. The court, therefore, felt constrained to find that in 1920 and up to 1924, in which time the two year period of limitations would have elapsed, there was neither knowledge of an occupational hazard in the dial painting industry nor, in the light of the knowledge concerning radium, reason for the defendant to believe or to have known of a hazard. The defendant could not have been under a duty to disclose a hazard which, so far as it or the world knew, did not exist. The court refused to enjoin the defendant from pleading the statute of limitations. —*La Porte v. United States Radium Corporation, 13 F. Supp. 263.*

Society Proceedings

COMING MEETINGS

Academy of Physical Medicine, Boston, Oct. 20-22. Dr. Franklin P. Lowry, 313 Washington St., Newton, Mass., Secretary.

American Academy of Ophthalmology and Otolaryngology, New York, Sept. 26-Oct. 3. Dr. William P. Wherry, 107 South 17th St., Omaha, Executive Secretary.

American Association for the Study of Neoplastic Diseases, Washington, D. C., Sept. 17-18. Dr. Eugene R. Whitmore, 2139 Wyoming Ave. N.W., Washington, D. C., Secretary.

American Association of Industrial Physicians and Surgeons, Atlantic City, N. J., Oct. 5-6. Dr. Volney S. Cheney, Armour and Co., Union Stock Yards, Chicago, Secretary.

American Association of Obstetricians, Gynecologists and Abdominal Surgeons, Bretton Woods, N. H., Sept. 14-16. Dr. James R. Bloss, 418 Eleventh St., Huntington, W. Va., Secretary.

American Association of Railway Surgeons, Chicago, Nov. 5-7. Dr. Daniel B. Moss, 547 West Jackson Blvd., Chicago, Secretary.

American Clinical and Climatological Association, Richmond, Va., Oct. 19-21. Dr. Francis M. Rackemann, 263 Beacon St., Boston, Secretary.

American College of Surgeons, Philadelphia, Oct. 19-23. Dr. George W. Crile, 40 East Erie St., Chicago, Chairman, Board of Regents.

American Hospital Association, Cleveland, Sept. 28-Oct. 2. Dr. Bert W. Caldwell, 18 East Division St., Chicago, Executive Secretary.

American Public Health Association, New Orleans, Oct. 20-23. Dr. Reginald M. Atwater, 50 West 50th St., New York, Executive Secretary.

American Roentgen Ray Society, Cleveland, Sept. 29-Oct. 2. Dr. Eugene P. Pendergrass, 3400 Spruce St., Philadelphia, Secretary.

Associated Anesthetists of the United States and Canada, Philadelphia, Oct. 19-23. Dr. F. H. McMechan, 318 Hotel Westlake, Rocky River, Ohio, Secretary.

Association of American Medical Colleges, Atlanta, Ga., Oct. 26-28. Dr. Fred C. Zapffe, 5 South Wabash Ave., Chicago, Secretary.

Association of Military Surgeons of the United States, Detroit, Oct. 29-31. Dr. H. L. Gilchrist, Army Medical Museum, Washington, D. C., Secretary.

Central Association of Obstetricians and Gynecologists, Detroit, Oct. 15-17. Dr. Ralph A. Reis, 104 South Michigan Blvd., Chicago, Secretary.

Delaware, Medical Society of, Rehoboth, Oct. 12-14. Dr. William H. Speer, 917 Washington St., Wilmington, Secretary.

Indiana State Medical Association, South Bend, Oct. 6-8. Mr. Thomas A. Hendricks, 23 East Ohio St., Indianapolis, Executive Secretary.

Inter-State Postgraduate Medical Association of North America, St. Paul, Oct. 12-16. Dr. W. B. Peck, 27 East Stephenson St., Freeport, Ill., Managing Director.

Kansas City Southwest Clinical Society, Kansas City, Mo., Oct. 5-8. Dr. J. V. Bell, 1103 Grand Ave., Kansas City, Mo., Secretary.

Kentucky State Medical Association, Paducah, Oct. 5-8. Dr. Arthur T. McCormack, 532 W. Main St., Louisville, Secretary.

Michigan State Medical Society, Detroit, Sept. 21-24. Dr. C. T. Ekelund, 35 West Huron St., Pontiac, Secretary.

Mississippi Valley Medical Society, Burlington, Iowa, Sept. 30-Oct. 2. Dr. Harold Swanberg, 510 Maine St., Quincy, Ill., Secretary.

Nevada State Medical Association, Reno, Sept. 25-26. Dr. Horace J. Brown, 20 North Virginia St., Reno, Secretary.

Ohio State Medical Association, Cleveland, Oct. 7-9. Mr. C. S. Nelson, 79 East State St., Columbus, Executive Secretary.

Omaha Mid-West Clinical Society, Omaha, Oct. 26-30. Dr. J. D. McCarthy, 107 South 17th St., Omaha, Secretary.

Oregon State Medical Society, The Dalles, Oct. 8-10. Dr. Morris L. Bridgeman, 1020 S.W. Taylor St., Portland, Secretary.

Pennsylvania, Medical Society of the State of, Pittsburgh, Oct. 5-8. Dr. Walter F. Donaldson, 500 Penn Ave., Pittsburgh, Secretary.

Tri-States Medical Society of Texas, Louisiana and Arkansas, Longview, Texas, Oct. 26-27. Dr. John M. Ellis, Mt. Pleasant, Texas, Secretary.

Virginia, Medical Society of, Staunton, Oct. 13-15. Miss Agnes V. Edwards, 1200 East Clay St., Richmond, Secretary.

Current Medical Literature

AMERICAN

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Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

52: 1-258 (July) 1936

Basal Metabolism of Girls: President's Address. F. B. Talbot, Boston.—p. 1.

Basal Energy Metabolism and Creatinine in Urine: I. Observations on Children. N. B. Talbot, Boston.—p. 16.

*Improvement in Diagnosis of Whooping Cough: Correlation Between Sedimentation Rate and Cell Count of Blood on Basis of Proved Cases. A. E. Gold and H. O. Bell, Belleville, N. J.—p. 25.

Metabolism of Adolescent Girls: IV. Mineral Metabolism. C. C. Wang, Mildred Kaucher and Mary Wing, Cincinnati.—p. 41.

Pathologic Alterations in Lipoid Content of Adrenals in Infancy and in Childhood. Maud L. Menten and M. P. Smith, Pittsburgh.—p. 54.

Beta Hemolytic Streptococcic Infection in Infancy and in Childhood: III. Placental Transmission of Antifibrinolysin and Antistreptolysin. V. W. Lippard and G. W. Wheeler, New York.—p. 61.

Recovery of Filtrable Virus from Children with Influenza: I. Epidemiologic and Clinical Observations. I. J. Brightman and J. D. Trask, New Haven, Conn.—p. 67.

Id. II. Experimental Disease in Ferrets. I. J. Brightman, New Haven, Conn.—p. 78.

*Inhalation of Epinephrine Hydrochloride for Relief of Asthma in Children. J. B. Graeser and A. H. Rowe, Oakland, Calif.—p. 92.

Hypophyseal Infantilism: Treatment with Anterior Hypophyseal Extract; Final Report. E. K. Shelton; L. A. Cavanaugh, Santa Barbara, Calif., and H. M. Evans, Berkeley, Calif.—p. 100.

Improvement in Diagnosis of Whooping Cough.—Gold and Bell report the results of the blood counts and determinations of the blood sedimentation rate in a series of proved cases of pertussis; they show the value and limitations of these laboratory procedures as aids in the diagnosis of atypical whooping cough; they discuss the difficulties encountered in the diagnosis of pertussis and review the literature, with especial reference to the diagnostic criteria in current use. A comparison of the usefulness of the various laboratory methods as an aid in early diagnosis of either the typical or the atypical forms of whooping cough suggests the following facts: 1. In the catarrhal stage (*a*) the cough plate-droplet method still remains indisputably the most successful approach; (*b*) the blood count proves to be too unreliable a basis on which to venture an interpretation of the leukocyte-lymphocyte formula, and (*c*) the sedimentation test is found to be misleading and, in the advent of retardation, becomes valueless through loss of its proper diagnostic significance in the absence of a characteristic blood count. 2. In the paroxysmal stage (*a*) cultures with cough plates are positive in only 67 per cent of the cases, while single tests are not always successful and require at least three days for results; (*b*) hematologic studies show that the expected typical lymphocytic reaction is present in approximately 80 per cent of the cases as the most presumptive evidence, and (*c*) retardation of the sedimentation rate was demonstrated in at least 94 per cent of the cases in the series in which there was no complication, and it proved to be a valuable laboratory adjunct. 3. In the period of decline (*a*) cough plates are usually sterile, indicating the decreased contagiousness in this stage; (*b*) the sedimentation test possesses no special diagnostic importance in this late period, yet it may serve as a sensitive indicator of a complicating pathologic activity, and (*c*) the practical significance of the complement fixation test, the agglutination test and the cutaneous tests (included in the later half of the paroxysmal stage) is questionable.

Epinephrine Hydrochloride for Relief of Asthma.—Graeser and Rowe show that the inhalation of epinephrine hydrochloride for relief of asthma is a practical and effective procedure in children of all ages and that success with this procedure is dependent on the use of a stronger solution than is usually employed in the treatment of asthmatic symptoms, preferably 1:100, and an atomizer capable of delivering a fine vapor-like spray. This was accomplished by modifying the nebulizing mechanism of the common all glass atomizer. To prevent spilling of the solution into the mouth during use, an inverted moat was incorporated in the atomizer. This special feature was found desirable after several patients had complained of severe pain in the epigastrium, which resulted from the swallowing of small amounts of the solution accidentally spilled into the mouth. Such accidents cannot occur with the present atomizer. The method of using the atomizer is simple, but nevertheless it requires a modicum of coordination, which patients occasionally find difficult to acquire without considerable practice. Children aged 1 or 2 years cannot, of course, furnish the necessary cooperation to utilize the procedure. Children from 3 to 5 years of age may be trained to inhale properly and even to manipulate the atomizer themselves, but in general young children must use the mask apparatus designed to conform to the configuration of the face and to cover the nose and mouth. An atomizer of somewhat different external design than that previously described fits into the handle of the mask apparatus. A motor driven pump may be used instead of the hand-operated bulb to furnish air pressure for the mask. The authors say that, since the perfection of this method, they have used it as a routine for all patients. It is surprising how readily the younger patients learn to use the apparatus. The authors describe several case histories and conclude that the relief obtainable by this means is comparable, and in some respects superior, to the relief obtained with epinephrine hydrochloride administered hypodermically. The results obtained with inhalation therapy are superior to those obtained with all commonly used proprietary remedies.

American Journal of Medical Sciences, Philadelphia

192: 1-152 (July) 1936

Existence of Intrinsic Deficiency in Pellagra: Preliminary Report. V. P. Sydenstricker, E. S. Armstrong, C. J. Derrick and P. S. Kemp, Augusta, Ga.—p. 1.

Studies in Diabetes Mellitus: IV. Etiology: Part II. E. P. Joslin, Boston; L. I. Dublin and H. H. Marks, New York.—p. 9.

Treatment of Diabetic Coma. J. W. Conn, Ann Arbor, Mich.—p. 23.

Viscosity, Proteins and Lipids of Blood Plasma in Essential Hypertension. J. T. Brundage, A. Cantarow and R. S. Griffith, Philadelphia.—p. 30.

Use of Calcium Gluconate as Circulation Time Test. S. J. Goldberg, Philadelphia.—p. 36.

Effect of Two Water Insoluble Squill Glucosides on Electrocardiogram. C. C. Maher and W. W. Sittler, Chicago.—p. 41.

Rôle of Laboratory in Diagnosis of Gallbladder Disease. H. Shay and Cecilia Riegel, Philadelphia.—p. 51.

*Effect of Ergotamine Tartrate on Nonmigrainous Headaches. W. G. Lennox, T. J. C. von Storch and P. Solomon, Boston.—p. 57.

Comparison of Prolan Bio-Assays in Teratoma and Other Conditions. S. E. Owen and M. Cutler, Chicago.—p. 61.

Spontaneous Pneumothorax Simulating Acute Abdominal Affections. F. Steigmann and H. A. Singer, Chicago.—p. 67.

Method for Determining Sedimentation Rate and Red Cell Volume in Infants and Children with Use of Capillary Blood. C. H. Smith, New York.—p. 73.

Macrocytic Anemia in Liver Disease, Particularly Cirrhosis: Observations on Incidence, Course and Reticulocytosis, with Correlated Study of Gastric Acidity. D. H. Rosenberg, with technical assistance of A. Walters, Chicago.—p. 86.

Aneurysm of Abdominal Aorta: Study of Seventy-Three Cases. R. H. Kampmeier, New Orleans.—p. 97.

*Abdominal Pain of Vascular Origin. J. E. Dunphy, Boston.—p. 109.

Vascular Changes in Intermittent Claudication: Note on Value of Arteriography in This Symptom Complex. J. R. Veal and Elizabeth M. McFetridge, New Orleans.—p. 113.

Effect of Ergotamine Tartrate on Nonmigrainous Headaches.—Lennox and his collaborators administered ergotamine tartrate to forty-six patients suffering from nonmigrainous headaches associated with aseptic meningitis, intracranial pressure, subnormal intracranial pressure following removal of spinal fluid, postconvulsive headache, sinusitis, or artificially induced by means of histamine phosphate injected intravenously. Ergotamine tartrate was given to these patients in the same manner as to patients with migraine: 0.5 mg. intravenously or subcutaneously. Besides the patient's statement of the effect on the pain, record was kept of the occurrence of nausea and vomiting, and of changes in blood pressure and pulse rate. The headache of these forty-six patients was relieved in 15, unchanged in 63 and worse in 22 per cent, as compared

with 89.8 and 3 per cent, respectively, of 120 cases of migraine headaches. Study of the results in the various conditions represented in the nonmigrainous group shows that, of the seven patients relieved, three were in the group of eleven headaches of unknown cause and three were in the group of eight postconvulsive headaches. The large proportion of epileptic patients who were relieved brings to mind the supposed underlying relationship of epilepsy and migraine, though more important may be the fact that postconvulsive headaches are naturally short lived. Of the ten subjects made worse by the injection, five belonged to this unknown group and two to the postseizure group. Not only is ergotamine of little account in stopping nonmigrainous headaches, but it may, according to Barger, initiate a headache. To test this point the authors administered the drug to thirty-eight subjects who were at the time free from pain in the head. Six of the subjects complained of resulting mild headache.

Abdominal Pain of Vascular Origin.—If, as Conner suggests, visceral arterial disease is analogous to coronary disease, Dunphy believes that the past histories of patients dying of mesenteric thrombosis ought to reveal evidence, in a certain percentage of cases, of chronic abdominal pain preceding the acute attack. With this point in mind he reviewed the histories of all patients dying of mesenteric vascular occlusion, confirmed by necropsy, in the Peter Bent Brigham Hospital. In seven of twelve cases in which the occlusion was associated with arteriosclerosis there was a story of chronic recurrent abdominal pain preceding the fatal attack by weeks, months or years. In all these cases mesenteric arteriosclerosis appeared to be the most plausible cause of the abdominal pain, but unfortunately in nearly every case varying degrees of coronary sclerosis rendered a convincing interpretation of the cause of the pain impossible. One case was selected as indisputable evidence of the occurrence of abdominal pain of vascular origin. An evaluation of the clinical and pathologic evidence in this case leads to the conclusion that a gradual occlusion of the mesenteric arterial system by progressive thrombosis was the cause of recurrent abdominal pain of a duration of two months. Although the pain was severe, it was not sharply localized, did not radiate and was not associated with muscular spasm or exquisite tenderness of the abdominal wall. In the beginning it was definitely related to the ingestion of food and only later became constant. On the basis of these characteristics the following hypothesis is submitted: Vascular pain in the abdomen is the result of an anoxemia of the intestinal wall and is a true visceral pain manifested through sensory neurons in the sympathetic nerves independently of the musculocutaneous pathways.

American Journal of Physiology, Baltimore

116: 1-244 (June) 1936

*The Postexercise Suppression of Kidney Function in Man. Frances A. Hellebrandt, C. Etta Walters and Mary Louise Miller, Madison, Wis. —p. 168.

Comparison of Changes in Hydrogen Ion Concentration of Arterial Blood and Saliva During Variations of Pulmonary Ventilation. C. R. Brassfield, Ann Arbor, Mich.—p. 174.

Distribution of Adrenergic Vasodilators in Rat. L. C. Wyman and Caroline tum Suden, Boston.—p. 182.

Vitamin C and Adrenal Cortical Hormone. J. L. Svirbely and E. C. Kendall, Rochester, Minn.—p. 187.

Lesions in Pancreas and in Anterior Hypophysis with Fatal Acidosis Following Prolonged Intravenous Administration of Glucose (in Dogs). H. R. Jacobs and A. R. Colwell, Chicago.—p. 194.

Experimental Induction of Estrus (Sexual Receptivity) in Normal and Ovariectomized Guinea-Pig. E. W. Dempsey, R. Hertz and W. C. Young, Providence, R. I.—p. 201.

Is a Portion of Pancreatic Secretory Response to a Meal Due to Absorption of Digested Food Products? J. Gray, M. S. Kim and A. C. Ivy, Chicago.—p. 210.

Influence of Liver in Formation and Destruction of Bile Salts. J. L. Bollman and F. C. Mann, Rochester, Minn.—p. 214.

Regeneration of Taste Buds After Suture of Lingual and Hypoglossal Nerves. J. M. D. Olmsted and R. R. Pinger, Berkeley, Calif.—p. 225.

Fusillade Patterns of Inspiratory and Expiratory Muscles and Their Effects on Respiratory Act. R. Gesell, Ann Arbor, Mich.—p. 228.

Some Physical and Physiologic Properties of System Insulin-Tannic Acid. F. Bischoff, Santa Barbara, Calif.—p. 239.

Suppression of Kidney Function After Exercise.—For their studies Hellebrandt and her associates had the cooperation of healthy young adult women students majoring in physical education and accustomed to vigorous exercise. It was found that mild exercise has no influence on water diuresis. Urine formation after exercise is stimulated by moderate activity. More rigorous exertion associated with breathlessness and sweating inhibits diuresis during the period of work. Brief violent exercise, such as is accompanied by lactic acid acidosis and a large oxygen debt, suppresses kidney function for from forty-five to sixty minutes. There is a lag of forty-five minutes before the greatest excretory diminution occurs. When diuresis is resumed, the rate of urine formation may exceed that attained at rest. The prolonged arrest of diuresis after brief violent exercise cannot be attributed to failure in absorption. The hypothesis suggested is that kidney function is suppressed after violent exercise because (1) blood is depleted of water by virtue of the increase in concentration of osmotically active components in the muscles, (2) a prolonged negative phase in blood pressure ensues, and (3) a resultant disturbance in the balance of osmotic and hydrostatic pressures reduces the volume of glomerular filtrate until the cardiovascular and physiochemical disturbances of exercise subside, from forty-five to sixty minutes after the cessation of muscular work.

Anatomical Record, Philadelphia

65: 255-370 (June 25) 1936

Number of Ganglion Cells in Dorsal Root Ganglions of Second and Third Cervical Nerves in Human Fetuses of Various Ages. Mary E. McKinniss, Pittsburgh and Woods Hole, Mass.—p. 255.

Effects of Two Hypophyseal Gonadotropic Hormones on Reproductive System of Male Rat. R. O. Greep, H. L. Fevold and F. L. Hisaw, Boston.—p. 261.

Comparative Studies on Origin and Development of Brachial Plexus. Ruth A. Miller and S. R. Detwiler, New York.—p. 273.

Cytologic Studies by Altmann-Gersh Freezing-Drying Method: I. Recent Advances in the Technic. N. L. Hoerr, Chicago.—p. 293.

Response of Thyroid Glands of Hypophysectomized Newts to Injections of Phyone and Their Reaction After Cessation of Treatment. A. Elizabeth Adams and Florence Martindale, South Hadley, Mass. —p. 319.

Rôle of Primitive Mesothelium in Development of Mammalian Spleen. E. A. Holyoke, Omaha.—p. 333.

Survival of Deciduomata in Unilaterally Pregnant Rat. R. A. Lyon and W. M. Allen, Rochester, N. Y.—p. 351.

Pituitary Gland of Fundulus. S. A. Matthews, Philadelphia.—p. 357.

Annals of Surgery, Philadelphia

104: 1-160 (July) 1936

Forgotten Chapter in History of Circulation of Blood. S. I. Haddad and A. A. Khairallah, Beyrouth, Syria.—p. 1.

Surgical Treatment of Hyperparathyroidism: Based on Thirty Cases Confirmed by Operation. E. D. Churchill and O. Cope, Boston.—p. 9.

*Metastases to Thyroid Gland from Cancer of Colon, F. W. Rankin and C. H. Fortune, Lexington, Ky.—p. 36.

Fall in Blood Pressure During Spinal Anesthesia. H. H. Bradshaw, Boston.—p. 41.

Evipal Anesthesia in Thoracic Surgery: Studies in One Hundred Thoracoplasties for Pulmonary Tuberculosis. P. N. Coryllos and Sara Bass, New York.—p. 46.

*Local Prophylactic Use of Anti-Gas Gangrene Serum. H. Lilienthal, New York.—p. 58.

Acute Intestinal Obstruction by Persimmon Phytobezoar: Report of Two Cases. R. L. Hargrave and R. Hargrave, Wichita Falls, Texas. —p. 65.

Transverse Incision in Upper Abdomen: Its Anatomic and Physiologic Advantages. R. L. Sanders, Memphis, Tenn.—p. 74.

Experimental Studies of Uretero-Intestinal Anastomosis: Preliminary Report. H. L. Douglass and L. W. Edwards, Nashville, Tenn.—p. 87.

Bilateral Aseptic Necrosis of Femoral Head: Problems Arising in Compensation Case. E. Freund, Venice, Fla.—p. 100.

Treatment of Old Unreduced Nasal Fractures. S. Fomon, New York. —p. 107.

Dislocation and Elongation of Long Head of Biceps Brachii: Analysis of Six Cases. E. L. Gilcreest, San Francisco.—p. 118.

Lipoma of Extremities. E. M. Bick, New York.—p. 139.

Metastases to Thyroid from Cancer of Colon.—Rankin and Fortune point out that their case of cancer is distinguished from an ordinary generalized carcinomatosis because of the occurrence of metastases in the thyroid. Cancer of the large intestine is less apt to produce distant metastases than neoplasms arising elsewhere in the gastro-intestinal tract. Further, carcinoma in the upper portion of the colon is less prone to distant spread than that occurring in the rectum. Mucin production in colonic tumors is of two types. In the first group there are many goblet cells and the mucoid change represents a differentiation of the carcinoma toward the normal function of colonic mucosa. These tumors are not prone to distant metastases and are among the less highly malignant of intestinal cancers. The

other group is highly undifferentiated and the mucin is present within highly atypical cells—the so-called signet-ring cells. These tumors are highly malignant and are prone to metastasize early and widely. The mucin formation in this particular carcinoma is of the first mentioned type. The spread of this neoplasm has been by both hematogenous and lymphatic routes. The involvement of the thyroid is undoubtedly by way of the adjacent carcinomatous cervical lymph nodes. In spite of the proximity, however, such an occurrence is extremely rare. In carcinoma of the colon it is even less frequent and in the particular type of cancer (an annular carcinoma just proximal to the hepatic flexure) represented by this case it is most unusual.

Prophylactic Use of Anti-Gas Gangrene Serum.—In 1930 Lilienthal began the systematic employment of local application of anti-gas gangrene serum to the freshly incised thoracic wall immediately after operative evacuation of a putrid abscess of the lung. In nine operative cases of intrathoracic fetid suppurative disease and one case of true gas gangrene of the leg, there was not a single visible postoperative anaerobic infection of the muscles or skin. Having placed the drainage material into the abscess cavity, the author completes the dressing by packing the entire wound of the chest wall from the abscess to the surface with gauze saturated with the serum. This was placed in the form of a doughnut packing, leaving an opening for the deep drainage. At the early subsequent dressings this serum impregnated gauze was not disturbed and, when at the end of five or six days the doughnut was no longer adherent to the chest wall, it was removed, leaving a perfectly clean, healing surface, with the areolar septums sealed. From now on the abscess was treated in the manner best suited to the individual case but, in spite of the still present anaerobic organisms, no infection occurred in the chest wall. And even when other abscesses developed in the depths and were evacuated through the same opening, the fresh, virulent infection from these hitherto undrained pockets did not infect the healing, granulating wound of the thoracic wall. No systemic effect ascribable to the serum, such as serum sickness or urticaria, has been observed, and the danger of this complication may probably be disregarded because no intravenous or other injections are made. The price of the product is an objection but may be counteracted by reduction in the time and expense of hospitalization.

Archives of Neurology and Psychiatry, Chicago

36: 1-230 (July) 1936

Suicide and Mental Disease: Clinical Analysis of One Hundred Cases. G. R. Jameison, White Plains, N. Y.—p. 1.
Oxygen Saturation of Blood Draining Brain and Limbs of Patients with Epilepsy. W. G. Lennox and Erna L. Gibbs, Boston.—p. 13.
Prepsychotic Personality of Patients with Involutional Melancholia. W. B. Titley, New York.—p. 19.
Phenomena Resembling Lilliputian Hallucinations in Schizophrenia. A. Angyal, Worcester, Mass.—p. 34.
*Hemiedema in Cases of Hemiplegia. J. A. Luhan, Chicago.—p. 42.
Arhinencephaly with Extreme Eversion of End-Brain: Anatomic Study. H. Kuhlenbeck, Philadelphia, and J. H. Globus, New York.—p. 58.
*Subdural Traction and Posttraumatic Headache: Study of Pathology and Therapeusis. W. Penfield and N. C. Norcross, Montreal.—p. 75.
Occlusion of Anterior Spinal Artery: Clinicopathologic Report of Case and Review of Literature. H. Zeitlin and B. W. Lichtenstein, Chicago.—p. 96.
Cells of Nervous System in Acute and in Chronic Morphinism: Correlation of Changes with Behavior. E. M. MacEwen and A. R. Buchanan, Iowa City.—p. 112.
Angio-Architecture of Substantia Nigra and Its Pathogenic Significance. K. H. Finley, Boston.—p. 118.
Electromyographic Studies of Neuromuscular Disorders. D. B. Lindsley, Cleveland.—p. 128.

Hemiedema in Cases of Hemiplegia.—Luhan points out that marked edema localized to the paralyzed side in cases of hemiplegia arouses curiosity and stimulates inquiry concerning the mechanism of its causation; it particularly raises the question of the existence of cerebral vasomotor centers of contralateral dominion. After reviewing the literature on hemiedema, he reports the histories of seven cases that he observed. After the first four cases had been encountered, a series of 100 patients with hemiplegia were selected at random and examined for the purpose of determining the gross frequency of vasomotor disturbances in cases of recent and of long-standing hemiplegia. In the conclusion the author states that hemiedema, or edema more marked on the paralyzed side, occurring at some time during the course of hemiplegia was noted in fifteen of 100 unselected cases of hemiplegia. However, such edema is usually mild; marked edema of the paralyzed extremities rarely occurs. The edema itself is probably of cardiac or of renal origin. The cerebral lesion effects a tendency to localize actual or potential edema to the paretic extremities. There is clinical evidence to suggest that some of the circulatory disturbances in hemiplegic limbs may be of cerebral vasomotor origin, quite apart from the purely mechanical factors inseparably linked with the hemiparesis; but thus far the results of clinical studies, which were checked with postmortem observations, have not furnished any critical evidence for localizing a cerebral vasomotor center of contralateral dominion.

Subdural Traction and Posttraumatic Headache.—Penfield and Norcross point out that posttraumatic headache associated with dizziness is a clinical entity. They report the histories of cases in which treatment with cranial insufflation was carried out. They also describe experimental studies and outline two methods of therapeutic insufflation; namely, (1) a formerly described intraspinal method of insufflation and (2) a not previously described method of direct intracranial subdural insufflation. They say that the subdural space under normal circumstances contains a small body of fluid quite separate from the cerebrospinal fluid. Small movements that occur between the brain and the skull when the head is moved quickly are probably made possible because of this fluid bed. Such movements between the pia and the arachnoid are impossible because of the tissue septums that normally connect these membranes. The pathologic basis of true posttraumatic meningeal headache consists in an intimate adhesion of the arachnoid to the dura, which causes obliteration of the subdural space in a smaller or larger area. This does not mean dense adhesions, such as those of a scar. The sensitive area, which is likely to be affected by this adhesion, is usually a meningeal artery in the dura or, less frequently, a dural sinus. The chronic pain is due to pressure or traction on one of these sensitive areas because of the rotation in position of the brain produced by the blow and maintained by the adhesion. Effective therapy must provide for collapse of the ventricular system and the simultaneous introduction of air into the subdural space. As the head is oscillated, the brain, which is shrunken because of the collapse of the ventricles, pulls away from the overlying dural covering with considerable traction, owing to its own weight. This separation accounts for the cure which results from proper insufflation of air. Failure may occur when this reopening is incomplete, and adhesion continues to stimulate a sensitive area of dura.

Archives of Surgery, Chicago

33: 1-186 (July) 1936

Duodenogastric Intussusception: Experimental Study of Peptic Ulcer. J. K. Berman with assistance of N. E. Baxter, Indianapolis.—p. 1.
*Operative Experience in Cases of Pineal Tumor. W. E. Dandy, Baltimore.—p. 19.
Intestinal Obstruction Produced by Mesenteric Bands in Association with Failure of Intestinal Rotation. E. G. Wakefield and C. W. Mayo, Rochester, Minn.—p. 47.
*Rôle of Reticulo-Endothelial System in Deposition of Colloidal and Particulate Matter in Articular Cavities. J. G. Kuhns and H. L. Weatherford, Boston.—p. 68.
*Influence of Motion of Healing of Fractures. W. J. Potts, Oak Park, Ill.—p. 83.
Cysts of Semilunar Cartilages. G. E. Bennett and M. B. Shaw, Baltimore.—p. 92.
Cutaneous Hyperalgesia of Abdomen: Experimental Study. S. Nixon, Indianapolis.—p. 108.
Diffuse Genuine Phlebectasia: Report of Case. E. Freund, Venice, Fla.—p. 113.
Etiology of Deep Acetabulum and Intrapelvic Protrusion. A. M. Rechtman, Philadelphia.—p. 122.
Diagnosis of Cancer of Stomach: Use of Gastroscope and Gruskin Test. G. H. Pratt, New York.—p. 138.
Gaseous Distention Associated with Mechanical Obstruction of Intestine. J. S. Hibbard, Wichita, Kan.—p. 146.
Sixtieth Report of Progress in Orthopedic Surgery. J. G. Kuhns, E. F. Cave, S. M. Roberts, J. S. Barr and R. J. Joplin, Boston; J. A. Freiberg, Cincinnati; J. E. Milgram, New York, and R. I. Stirling, Edinburgh, Scotland.—p. 168.

Operative Experience in Cases of Pineal Tumor.—Although an operative approach to the pineal region was proposed by Dandy in 1921, it was not until a decade later that the first pineal tumor was successfully extirpated. A disastrous

toll of seven fatal issues during this long period seemed almost to indicate the futility of further efforts. However, three patients with tumor of the pineal body survived extirpation. One patient died three months later of undetermined cause; in the second patient the tumor recurred in two and one-half years, and the third patient is living and apparently well four months later. In most cases a pineal tumor causes only signs and symptoms of intracranial pressure, due to occlusion of the aqueduct of Sylvius. Important localizing signs occurring at times are ptosis, usually bilateral, limitation of the upward movements of the eyes and fixation and dilatation of the pupils. In none of the ten cases were there any disturbances of endocrine character. Perhaps the most important objective evidence of a pineal tumor in young children, but not in adults, is calcified shadow. Precise localization in all cases of pineal tumor can be made by ventriculography. The pathognomonic changes are a filling defect in the posterior part of the third ventricle and obliteration of the suprapineal recess. Six of the ten tumors in this series were in children between 10 and 17 years of age. The weights of the tumors ranged from 3 to 18 Gm. A pineal tumor is exposed by an occipital approach, separation of the right cerebral hemisphere from the falx and splitting of the corpus callosum. In cases of large tumor in which the ventricles are smaller, resection of the posterior part of the right cerebral hemisphere is necessary. This method was used in four cases, in three of which the outcome was fatal and in one successful. Transient blindness and subtotal paralysis of all the extra-ocular muscles followed operation in each of the three cases in which the intervention was successful. These disturbances disappeared a week or ten days later. They were doubtless due to edema resulting from trauma to the quadrigeminal plate, in which the tumor is always firmly embedded, and to the underlying brain stem. Left homonymous hemianopia may or may not follow and be permanent. It is probably due to compression of the cuneus during the separation of the hemisphere at operation.

Rôle of Reticulo-Endothelial System.—Kuhns and Weatherford show that the reticulo-endothelial system has widely divergent functions. Probably its most important function is that of active phagocytosis, as shown in inflammatory and reparative processes. Colloidal particles are engulfed and accumulated in granule-like masses in vacuoles within the cell body. Bacteria or other substances may be stored in these cells for periods, presumably without disturbing the activity of the cell. Violent poisons or virulent bacteria, however, soon destroy the cells that engulf them. Experimental proof has been offered by Metchnikoff, Gay and Meersohn that infection takes place when the cells of the reticulo-endothelial system are unable to free the body from invading micro-organisms. Moreover, local injury of tissues results when toxic substances or bacteria cannot be removed with sufficient rapidity. The activities of the reticulo-endothelial system in and about the joints constitute the problem of the present study. The young albino rat was chosen for the experiment. Observations were made on the nature and extent of the deposition of colloidal and particulate matter in and about the joints following subcutaneous injections. Further studies were made to determine how this deposition could be modified by trauma, irritation, inactivity or attempted local blocking of the reticulo-endothelial system. Finally the deposition of material in articular cavities after absorption from the gastro-intestinal tract was observed. It was hoped that some relationship might be established between the results of these studies and the problems of articular infection and of disturbances in joints associated with systemic disease, such as chronic arthritis. The authors describe and discuss eight different series of experiments, on the basis of which they reach the following conclusions: 1. Colloidal and particulate matter is carried to articular cavities from the various tissues of the body, such as the skin and the gastro-intestinal tract, through the blood stream. 2. Such transported material is stored chiefly in histiocytes in the synovial membrane. Large amounts are stored in the bone marrow. Lesser amounts are seen in the intermuscular septums and in the articular fat pads. 3. Mild inflammation in articular tissues tends to increase the amount of deposition of such transported substances. 4. Local blocking of the reticulo-endothelial system is transitory and incomplete and is ineffective in preventing the deposition of colloidal and particulate matter in articular tissues.

Influence of Motion on Healing of Fractures.—Potts reports an experimental study of the ingrowth of fibrous tissue into the line of fracture in the presence of slight motion. In a group of dogs the radius was sawed completely across, the point of division being in the midportion of the bone. A voluminous callus was noted in each animal, fifty-nine, fifty-four, forty-eight, fifty-five, thirty-five and forty-eight days, respectively, after the fracture, but definite motion between the fragments was still possible. It is, of course, recognized that eventual bony union would have resulted in each instance, because nonunion following simple fracture does not occur in the experimental animal. To prove that motion was the sole factor in the development of the band of fibrous tissue between the fragments of bone, a second series of experiments was undertaken under exactly the same conditions except that the bone was sawed only half-way across. The bone remained rigid, but the stimulus to callus formation was present. In commenting on his experimental observations the author points out that, when a fracture occurs, there is damage to more than one tissue. Each responds to the stimulus to repair. In the vast majority of instances the injured periosteum, cortex and endosteum furnish amply the necessary stimulus to cause the deposition of calcium salts, their transformation into osteoid tissue and, finally, their formation into new bone. If conditions are not right—for example, when the periosteum has been pulled off or destroyed or the blood supply is deficient or the bone sclerotic—scar tissue gains the upper hand and, because of its low differentiation and greater power of growth, fills in the space before the elements that cause the regeneration of bone can do so. Nonunion is more common after a transverse than after an oblique or spiral fracture. One would expect this for two reasons. First, in the latter type there is more raw bone surface and, consequently, more stimulation toward callus formation; second, the greater the area of opposing raw bone surfaces, the less the opportunity for connective tissue to crowd in before regeneration of the bone has established itself. Concluding, the author says that this series of experiments demonstrates (1) the profuse growth of callus in the protected area about any point of injury to the bone, (2) the ingrowth of fibrous tissue between the fragments of bone at the point of motion, and (3) the rapid and complete bridging of a defect in the bone in the presence of complete immobilization.

Illinois Medical Journal, Chicago

70: 1-104 (July) 1936

The Career of the Heart. R. A. Kinsella, St. Louis.—p. 55.
The Heart in Thyroid Dysfunction. L. Feldman, Chicago.—p. 58.
Diseases of Lower Colon. D. C. Ditmore, Springfield.—p. 65.
Conservative Treatment of Peripheral Arterial Disease. F. V. Theis, Chicago.—p. 69.
*Urologic Lesions Masked as Essential Hypertension. C. O. Ritch, Chicago.—p. 74.
Age in Relation to Pregnancy. Effie L. Lobdell, Chicago.—p. 76.
Concerning Genital Tuberculosis, with Personal Observations. E. W. White and R. B. Gaines, Chicago.—p. 78.
*Correlation of Bacteriologic and Clinical Course in Phage Therapy of Chronic Furunculosis of Face. G. H. Gowen, Springfield,—p. 82.
Comparative Study of Standards for Normals in Basal Metabolism Tests. Valeska D. Pfeiffer, Oak Park.—p. 86.
Asthma. H. K. Scatliff, Chicago.—p. 88.
Critical Examination of Recent Advances in Obstetrics. W. B. Serbin, Chicago.—p. 91.
Rectal Causes of Chronic Constipation. C. Drueck, Chicago.—p. 94.
Tuberculosis in the Illinois State Psychopathic Hospitals. D. C. McCool, Memphis, Tenn.—p. 96.

Urologic Lesions Masked as Essential Hypertension.—Ritch cites a case that aroused his interest in patients who had been under treatment for essential hypertension for variable periods and in whom a urologic lesion was discovered inadvertently to be the causative factor. Five similar cases are reported, but a detailed urologic study was not made until the symptoms definitely indicated that it should be made. He believes that routine pyelography is indicated in cases of essential hypertension provided not only a careful, intelligent physical examination has been carried out but also a diligent and detailed history obtained. He does not believe that any serious objection can be raised in those cases of elevated pressure with annoying symptoms and sequels or in those in which the pressure is in itself a hazard to one's well being. The helplessness to deal adequately with hypertension adds force to this premise. Such helplessness likewise lessens the obvious objections of

expense and annoyance toward pyelography. Cases of pyelectasis or other urinary tract disease may be masked as essential hypertension and may continue to be unrecognized except in those few persons who develop infection or other acute urinary symptoms, thus directing attention to the urinary tract. Pain and frequency of urination in the female should not be dismissed so readily. Backache, pain in the legs, lassitude, listlessness and fatigue in the male should be subjected to a close scrutiny for prostatitis, vesiculitis and strictures. Diagnoses of "acid urine" and "strain" should be relegated to the prescientific era of medicine.

Bacteriophage Therapy of Chronic Furunculosis of Face.—Gowen avers that the application of staphylococcus bacteriophage therapy to the face in cases of chronic furunculosis results in an exacerbation of the condition in from ten to twenty-one days. Until this exacerbation occurs, clinical improvement does not take place. In cases responding well, clinical improvement seems to be associated with a disappearance of the aureus and citreus strains of staphylococci initially from the hands and secondarily from the face. When there is no diminution in the number of pigmented staphylococci there is no marked improvement, and bacteriophage therapy seems to be of no avail. When the skin flora is primarily sarcina, bacteriophage therapy has little, if any, effect on this type of flora and there is only a transient clinical improvement. There is evidence of an association between the ability of the skin to induce the S to R change and improvement. Bacteriophage therapy seems to stimulate rough colony formation to some degree. Because the flora of the face and that of the hands are similar, it would be logical to assume that the hands are continually playing a part in seeding new surfaces of the face and reseeding old surfaces.

Iowa State Medical Society Journal, Des Moines

26: 331-450 (July) 1936

President's Address. T. A. Burcham, Des Moines.—p. 331.
The Changing Times. P. E. Sawyer, Sioux City.—p. 336.
The Use of Barbital Products. F. G. Norbury, Jacksonville, Ill.—p. 338.
Feeding Cases. P. C. Jeans, Iowa City.—p. 343.
Classification and Management of Chronic Suppurative Otitis Media. H. L. Williams, Rochester, Minn.—p. 346.
Experience with Care of Urinary Tract Infections. W. R. Hornaday, Des Moines.—p. 352.
Preoperative and Postoperative Care of Thyroid Patient. F. B. Dorsey Jr., Keokuk.—p. 354.
The Relationship Between the Industrial Surgeon, the Insurance Company and the Employee. W. C. Goenne, Davenport.—p. 357.
Prenatal Diagnosis of Spina Bifida. L. A. Faber and L. G. Ericksen, Dubuque.—p. 359.

Johns Hopkins Hospital Bulletin, Baltimore

58: 383-438 (June) 1936

*Intranuclear Inclusion Bodies in Kidney and Liver Caused by Lead Poisoning. S. S. Blackman Jr., Baltimore.—p. 384.
Observations on Pathologic Changes in Suprarenalectomized Dogs, with Particular Reference to Anterior Lobe of Hypophysis: Comparison with Addison's Disease. W. M. Nicholson, Baltimore.—p. 405.
Polyuria and Polydipsia (Diabetes Insipidus) and Glycosuria Resulting from Animal Experiments on Hypophysis and Its Environs. F. L. Reichert, San Francisco, and W. E. Dandy, Baltimore.—p. 418.

Inclusion Bodies in Lead Poisoning.—Blackman found intranuclear acidophilic inclusion bodies in the tubular epithelium of the kidneys and in liver cells in twenty-one cases of lead poisoning occurring in children, and similar inclusions were reproduced in the kidneys of guinea-pigs, mice and rats by adding lead to the diet of these animals. These inclusion bodies are variable in size and shape. Many of them are quite large and are round, smooth and homogeneous in appearance. Some are plastic and assume the shape of the distorted nuclei in which they occur. Some of the nuclei contain many small granular and droplike inclusion bodies. Like the intranuclear inclusions of virus diseases the majority are stained by dyes, such as eosin and phloxin, and they give a negative staining reaction for thymonucleic acid. It is probable that the inclusion bodies represent accumulations in damaged cells of the acidophilic material which is present in smaller amounts in normal cells. As in virus diseases, the nuclei in which the inclusions of lead poisoning occur are increased in size and altered in shape, and the arrangement of basophilic chromatin in the nuclei is also abnormal. The quantity of chromatin is greatly increased in some nuclei. In many others the chromatin granules collect along the periphery of the nucleus and also along the margin of the inclusion body, leaving a relatively clear space between the inclusion and nuclear membrane. The cytoplasm of the affected cells in the kidney especially is also damaged. Some cells are enlarged. Many are thin, flattened and basophilic in appearance. Some cells contain fat, especially in the liver, and in both kidney and liver completely necrotic cells are found. Evidence of regeneration of tissue in the kidneys is indicated by the presence of mitotic figures and cells with basophilic cytoplasm. The tubules in each cortical ray of the kidney are especially damaged by lead, and in this location atrophied tubules, scars and slight chronic inflammation may be found. In most of the affected human livers, aside from fat deposits in the cytoplasm and marked changes in the nuclei of the hepatic cells, there is slight inflammation and scarring in the periportal areas, accompanied in some instances by slight proliferation of bile ducts.

Journal of Allergy, St. Louis

7: 443-542 (July) 1936

Reactions to Intracutaneous Injections of Nucleoproteins of Upper Respiratory Pathogenic Bacteria in Asthmatic Patients. F. A. Stevens and L. Jordani, New York.—p. 443.
Alum as an Adjuvant in Sensitizing Guinea-Pigs to Ragweed Pollen (Ambrosia Artemisiifolia). A. H. W. Caulfeild, M. H. Brown and E. T. Waters, Toronto.—p. 451.
Hypersensitiveness to Fungi. G. T. Brown, Washington, D. C.—p. 455.
Blood Sugar Studies in Hay Fever and Asthma. E. L. MacQuiddy, A. R. McIntyre and D. Koser, Omaha.—p. 471.
Heterophile Antigen Content of Pollen: Negative Report. P. D. Garvin and S. K. Kurland, Denver.—p. 475.
Critique of Perennial Treatment of Pollen Allergy. M. M. Peshkin, New York.—p. 477.

Journal of Lab. and Clinical Medicine, St. Louis

21: 993-1104 (July) 1936

Experimental and Clinical Observations Regarding Angina Pectoris and Some Related Symptoms. D. E. Jackson and Helen L. Jackson, Cincinnati.—p. 993.
*Complete Temporary Recovery, of Long Duration, in Acute Aleukemic Myeloid Leukemia: Case Report. I. H. Marcus, Brooklyn.—p. 1006.
Comparison of Xylose Tolerance with Blood Urea in Nephritic Rats. H. W. Larson, New York.—p. 1010.
Comparative Studies in Chemotaxis. J. E. Klein, Chicago.—p. 1017.
Constitution and Arthritis. J. Kovacs and E. F. Hartung, New York, with technical assistance of Virginia Hanscom.—p. 1022.
Effects of Dyes on Endamoeba Histolytica in Vitro. H. Tsuchiya, St. Louis.—p. 1028.
*Studies on Effect of High Sulfur Low Carbohydrate Diet in Chronic Arthritis. J. C. Forbes, R. C. Neale, O. L. Hite, D. B. Armistead and S. L. Rucker, Richmond, Va.—p. 1036.
Bactericidal Action of Irradiated Oil of Pine on Hemolytic Streptococcus. F. A. Stevens, New York.—p. 1040.
Relation of Bacterial Infection to Liver Injury: Studies in Cinchophen Intoxication. L. S. Radwin and M. Lederer, Brooklyn.—p. 1047.
Lung Abscess: Clinical Consideration of 101 Cases. H. C. Lueth and D. C. Sutton, Chicago.—p. 1056.
*A New, One Minute Method for Staining of Spirochetes, Spirilla, Spermatozoa and Related Organisms. A. J. Gelarie, New York.—p. 1065.
Influence of Physiologic Salines in Complement Fixation Reactions. J. E. Faber Jr. and L. A. Black, College Park, Md.—p. 1069.
Method of Quantitative and Qualitative Estimation of Platelets in Their Own Plasma. Eleanor I. Leslie and H. N. Sanford, Chicago.—p. 1078.
Ball Mill for Grinding Small Quantities of Bacteria. J. F. Norton, J. H. Dingle and T. H. Shenstone, Kalamazoo, Mich.—p. 1083.
Determination of Fibrin by the Biuret Method. J. Fine, London, England.—p. 1084.
Satisfactory Drinking Fountain for Caged Animals. G. Walker, Baltimore.—p. 1087.
Modification of Folin and Wu's Method for Sugar Determination. M. Sahyun, Detroit.—p. 1089.
Rapid Method for Routine Serum Protein Determination. R. O. Bowman, Providence, R. I.—p. 1092.
Method for Microdetermination of Procaine in Cerebrospinal Fluid. H. Koster, A. Shapiro and Edna Posen, Brooklyn.—p. 1096.

Temporary Recovery in Acute Aleukemic Myeloid Leukemia.—Marcus reports a case of aleukemic myeloid leukemia, which at the outset appeared to be of an acute type. The patient made a complete recovery for from eight to ten months, with no evidence of the disease either on physical examination or on blood study, and then again evidenced the symptoms of acute myeloid leukemia and died. The case is of further interest because of the following: (1) a family history of having a brother suffering from Vaquez's disease and

a sister with Hodgkin's disease, (2) the axillary skin infiltration, which later disappeared, (3) the occurrence of vesicles on the skin containing serosanguineous fluid with induration about the vesicles, (4) the onset of the disease with manifestations of the joints strongly suggesting rheumatic fever, (5) only slight splenic enlargement at any time and (6) the comparatively large number of lymphocytes found at various stages throughout the disease.

High Sulfur Low Carbohydrate Diet in Chronic Arthritis.—Forbes and his co-workers observed the effects of a high protein low carbohydrate diet on the clinical course of patients with chronic arthritis, together with studies of the accompanying changes in urinary indole. Definite improvement resulted in the majority of cases, the best results being obtained in patients with rheumatoid arthritis. Especially good results were obtained in young persons in the early stages of the disease. Coincident with improvement, the indoluria, which almost invariably accompanied the disease in its active stages, diminished and finally disappeared. It is suggested that indole is causally related to chronic arthritis and that diets rich in sulfur aid in the detoxification of indole with consequent clinical improvement in the condition.

Staining of Spirochetes and Related Organisms.—In employing Gelarie's method, the material to be examined is smeared on the slide in a thin layer and allowed to dry in the air. It is covered with the zirconyl chloride solution (2.5 Gm. of recrystallized zirconyl chloride dissolved in 100 cc. of a 10 per cent solution of sodium chloride), allowed to stand five seconds and then washed with water. The zirconyl chloride solution acts as a fixative. Then a few drops of citric acid solution (a 10 per cent solution of recrystallized citric acid in distilled water to which a few crystals of thymol have been added) are placed on the smear, allowed to remain for ten seconds and washed off with water. A few drops of staining solution (0.25 Gm. of gentian violet dissolved in 100 cc. of tenth normal sodium lactate solution adjusted to a p_H of 8.4) are placed on the slide, allowed to remain for thirty seconds and then washed off with water. This is followed by momentarily covering the smear with a few drops of mercuric iodide solution (0.5 Gm. of mercuric iodide in 100 cc. of 0.5 per cent potassium iodide solution) and again washed with water. Uniformly excellent results may be obtained by counterstaining with aqueous carbol methylene blue solution (0.2 Gm. of methylene blue dissolved in 100 cc. of distilled water with addition of 0.2 Gm. of phenol) for five seconds. The dye is then washed off and the slide dried with filter paper. The specimen is examined by means of the oil immersion lens. In staining spirilla, the cell outlines are sharply defined and the integrity of the cell body is maintained. The red cells show a finely granular rose-colored cytoplasm, while the chromatin of the white cells stains blue. The spirilla are stained a deep purple (when artificial light is employed, but when the source of light is daylight the organisms appear to be stained a deep blue, in contradistinction to the other elements present, which stain a light blue), differentiating them easily from surrounding tissue. Spirochaeta pallida is stained a deep purple and is very sharply defined in the clear, colorless field or in the faint, pink base formed by the stained coagulated serum. With spermatozoa, to obtain exact detail, counterstaining is not recommended, owing to overstaining of the organism. The different parts, head, neck and tail, with their components, can be readily distinguished. The method can also be used for staining other micro-organisms, such as gonococci and pneumococci. The mechanism of the method is explained on a chemicophysical basis.

Journal of Nervous and Mental Disease, New York

83: 645-772 (June) 1936

Personality, Psychogenesis and Psychoses. W. A. White, Washington, D. C.—p. 645.

Avertin and Encephalography: Description of Special Frame. J. E. Scarff and E. Walker, New York.—p. 661.

Hallucinatory Experience of Changes in Visual Perception. N. Ross, New York.—p. 671.

Follow-Up Study of One Hundred Patients Diagnosed as "Neurosis." B. I. Comroe, Philadelphia.—p. 679.

Study of Absorption Spectrum of Cerebrospinal Fluid in Visible Part of Spectrum. H. Mella, St. Cloud, Minn., and Mabel M. Blomberg, Northport, Long Island, N. Y.—p. 685.

Journal of Nutrition, Philadelphia

12: 1-112 (July 10) 1936

Effect of Different Forms of Iodine on Laying Hens. V. S. Asmundson, H. J. Almquist and A. A. Klose, Davis, Calif.—p. 1.

Vitamin C Studies with Children of Preschool Age. Gladys J. Everson and Amy L. Daniels, with cooperation of Florence I. Scoular and Mary F. Deardorff, Iowa City.—p. 15.

Studies on Relation of Diet to Goiter: IV. Antigoitrogenic Value of Some Foods. R. E. Remington, E. J. Coulson and H. Levine, Charleston, S. C.—p. 27.

Effect of Vitamin A (Carotene) Intake on Vitamin D Requirement of Rats in Production and Cure of Rickets. Florence S. Tabor, R. A. Dutcher and N. B. Guerrant, State College, Pa.—p. 39.

Effectiveness of Malt Amylase on Gastric Digestion of Starches. A. C. Ivy, C. R. Schmidt and J. M. Beazell, Chicago.—p. 59.

Technic for Determining Rate of Absorption of Fats. Margaret House Irwin, H. Steenbock and Vera May Templin, Madison, Wis.—p. 85.

Comparative Rate of Absorption of Different Fats. H. Steenbock, Margaret House Irwin and Janet Weber, with technical assistance of Vera May Templin, Meryl A. Pickering, A. R. Kemmerer and E. J. Lease, Madison, Wis.—p. 103.

Journal of Pharmacology & Exper. Therap., Baltimore

57: 199-332 (July) 1936

Local Anesthetic Actions of Certain Pyrazoline and Quinoline Compounds. H. K. Sinha, Edinburgh, Scotland.—p. 199.

Threshold Anesthetic and Lethal Concentrations of Certain Spinal Anesthetics in Rabbit. R. N. Bieter, R. W. Cunningham, O. Lenz and J. J. McNearney, Minneapolis.—p. 221.

Addiction and Tolerance to Barbiturates? Effects of Daily Administration and Abrupt Withdrawal of Phenobarbital-Sodium and Pentobarbital-Sodium in Albino Rat. E. J. Stanton, Cleveland.—p. 245.

Effect of Acid on Guinea-Pig Ileum Contracted by Acetylcholine and Histamine. J. W. Sachs and J. M. Ivie, Durham, N. C.—p. 253.

Studies on Barbiturates: XV. Excretion of Barbital in Normal and Nephropathic Subjects. W. P. Argy, C. R. Linegar and J. M. Dille, Washington, D. C.—p. 258.

Duration of Spinal Anesthesia in Rabbit. R. N. Bieter, J. J. McNearney, R. W. Cunningham and O. Lenz, Minneapolis.—p. 264.

Some Pharmacologic and Toxicologic Properties of Vinyl Ether. H. Molitor, Rahway, N. J.—p. 274.

Cause of Delayed Death in Rat by Isopropyl Betabromallyl Barbituric Acid (Nostal) and Some Related Barbiturates. H. G. O. Holck and and P. R. Cannon, Chicago.—p. 289.

Studies on Respiratory Actions of Drugs by Means of Phrenic Potentials: I. Nicotine. H. Gold and W. Modell, New York.—p. 310.

Reactions of Human Fetal Gastro-Intestinal Tract in Vitro. A. D. McLachlin, Oxford, England.—p. 324.

Kentucky Medical Journal, Bowling Green

34: 277-320 (July) 1936

Medical Care of Peptic Ulcers. C. W. Dowden, Louisville.—p. 280.

Treatment of Peptic Ulcer: The Allergic Aspects. F. A. Simon, Louisville.—p. 284.

Surgical Treatment of Peptic Ulcer. I. Abell, Louisville.—p. 286.

Carcinoma of Rectosigmoid. L. W. Frank, Louisville.—p. 294.

Latest Developments in the Field of Medicine: Report of American Medical Association Convention. M. Casper, Louisville.—p. 297.

Pneumococcic Meningitis: Report of Untreated, Recovered Case with an Unusual Sequela. C. Baron, Covington.—p. 302.

The Nervous Child. J. W. Bruce, Louisville.—p. 303.

*Tularemia as It Involves the Eye. A. O. Pfingst, Louisville.—p. 307.

The Southern Medical Association. J. H. Hendren, Pineville.—p. 309.

Anorectal Infections, Abscesses and Fistulas. R. C. Alley, Lexington.—p. 312.

Infections of Kidney from a Medical Point of View. O. Grant, Louisville.—p. 314.

Ocular Tularemia.—The oculoglandular type of tularemia in which Pfingst is especially interested is not infrequent. Apparently it occurs in all parts of the United States. Last year he observed two cases of ocular tularemia, the first in his experience. The cases occurred in young men who had killed and skinned rabbits a few days prior to the ocular symptoms. Ten days later the diagnosis was verified by a positive agglutination test. The case ran a slow but acute course, the preauricular, submaxillary and cervical glands suppurating and finally necessitating incision. Treatment consisted of washing the conjunctiva with antiseptic solutions, hot cloths to the enlarged glands and the use of 15 cc. of antitularemia serum (Foshay) intravenously on successive days for two doses. Complete recovery without sequel took place in five months. When the patient was last examined the agglutination test was still positive. The disease usually involves both eyes. Typical cases present multiple discrete ulcers of the palpebral conjunctiva with indurated margins. The disease is associated with swelling and marked injection of the conjunctiva of the lids and considerable chemosis. The preauricular glands and later

the lymphatic glands under the angle of the jaw nearly always become enlarged and tender and often abscessed. There is considerable discharge of mucus, as a rule. Constitutional symptoms, chill, fever and depression prevail as in other types of the disease. The disease closely resembles Parinaud's conjunctivitis and leptothrix conjunctivitis (Verhoeff). The clinical features aid in differentiation, but the positive diagnostic sign in ocular tularemia is the agglutination of Bacterium tularense in the blood of a tularemic patient. Most cases of ocular tularemia terminate in spontaneous recovery in several months and leave no sequels, although a small percentage of cases have terminated fatally by way of a general bacteremia.

Maine Medical Journal, Portland

27: 139-154 (July) 1936

Occipitoposterior Positions. R. B. Love, Gorham.—p. 139.
Value of Pavaex Therapy. H. C. Saltzstein, M. P. Meyers and S. Rosenzweig, Detroit.—p. 147.

Medical Bull. of Veterans' Adm., Washington, D.C.

13: 1-110 (July) 1936

Cardiovascular Syphilis. L. A. Kapp.—p. 1.
Use of Copper and Iron in Treatment of Secondary Anemias. M. H. Sandorf, H. B. Cupp and J. L. McGhee.—p. 16.
Iron, Copper and Liver Treatment in Hypochromic Anemia. W. H. Crede.—p. 22.
Copper in Treatment of Anemia. W. W. Bourke.—p. 28.
Incidental Appendix. L. B. Kline.—p. 32.
Some Aspects of Lung Abscess. J. Mandelberg.—p. 36.
Xanthomatosis: Schüller-Christian's Disease. J. Dauksys.—p. 40.
Diathermy in Treatment of Lobar Pneumonia. J. R. Boswell.—p. 52.
Intradermic Diagnosis of Tuberculosis in Guinea-Pigs. L. E. Nolan.—p. 56.
*Significance of Râles in Determination of Arrest of Tuberculosis. R. V. Proffitt.—p. 58.
Carcinoma of Larynx; Laryngectomy; Artificial Larynx. H. V. Hanson.—p. 61.
Postmortem Examination. G. H. Crofton.—p. 64.
Physical Examinations for Disability Rating Purposes. D. O. Smith.—p. 68.
Habit Training for Psychotic Patients. Josephine Stanley.—p. 73.
The Library as Road to Reeducation in Responsibility for Neuropsychiatric Patients. Lucy Condell.—p. 77.

Râles in Determination of Arrest of Tuberculosis.—Proffitt asserts that there has been a tendency on the part of many physicians, if the other conditions are met, to disregard the presence of râles in the lungs, even in the upper lobes, in the diagnosis of arrested tuberculosis. And they have apparently laid little stress on the type of râles in these cases. From his personal observation of many tuberculous patients and a recent review of several hundred case files, it has become apparent that the disregard of râles in the lungs, when making the diagnosis of arrested tuberculosis, has been ill advised in a proportion of cases. Moist râles in the upper lobes, such as are typically found in active pulmonary tuberculosis, are of the utmost importance, and only in rare instances should a diagnosis of arrested tuberculosis be made while they are present. In view of the most accepted theories concerning the anatomic and pathologic structures giving rise to râles, it would seem logical to assume that râles and activity might be divorced; but experience teaches the close relation between the two, and until other criteria of a more reliable nature are formulated, one may do well to give due respect to the medium râle.

Ohio State Medical Journal, Columbus

32: 493-600 (June 1) 1936

Factors Governing Fluid Therapy in Treatment of Enteritis. G. E. Cullen, Cincinnati.—p. 509.
Acute Intestinal Obstruction. R. C. Austin, Dayton.—p. 514.
Nongastric Factors in Peptic Ulcer Syndrome. L. A. Levison, Toledo.—p. 517.
Use of Iodized Oil in Gynecology. J. L. Reycraft, Cleveland.—p. 524.
Blood Stream Infection in Otolaryngology. F. F. Piercy, Youngstown.—p. 528.
Series of Rammstedt Operations for Pyloric Stenosis in Infants. H. B. Meader, Toledo.—p. 531.
Relation of the Practitioner to the Public Health Department. F. M. Wiseley, Findlay.—p. 534.
Chronic Arthritis: General Survey. P. R. Lecklitner, Canton.—p. 536.
Compensatory Hypertrophy and Hyperplasia of Islands of Langerhans in Utero: Congenital Hypoglycemia Due to Hyperinsulinism. W. H. Gordon, Detroit.—p. 540.

Psychoanalytic Quarterly, Albany, N. Y.

5: 147-302 (April) 1936

Clinical Study of Learning in Course of Psychoanalytic Treatment. T. M. French, Chicago.—p. 148.
Dreams and Dream Interpretation of the Diegueno Indians of Southern California. Gertrude Toffelmier and Katharine Luomala, Berkeley, Calif.—p. 195.
Obscene Words. E. Bergler, Vienna, Austria.—p. 226.
Male and Female: Psychoanalytic Reflections on "Theory of Genitality" and on Secondary and Tertiary Sex Differences. S. Ferenczi, translated by H. A. Bunker, New York.—p. 249.
Inhibitions, Symptoms and Anxiety. S. Freud, translated by H. A. Bunker, New York.—p. 261.

Public Health Reports, Washington, D. C.

51: 799-830 (June 19) 1936

Marine Hospitals and Beneficiaries of the Public Health Service. S. L. Christian.—p. 799.
Acute Response of Guinea-Pigs to Vapors of Some New Commercial Organic Compounds: XI. Secondary Amyl Acetate. F. A. Patty, W. P. Yant and H. H. Schrenk.—p. 811.

51: 831-870 (June 26) 1936

Relation of Physical Defects to Physical Growth of Children of Twenty-One States: Physical Measurement Studies Number Three. W. M. Gafafer.—p. 831.
Distribution and Hosts of Human Flea, Pulex Irritans L., in Montana and Other Western States. W. L. Jellison and G. M. Kohls.—p. 842.

Puerto Rico J. Pub. Health & Trop. Med., San Juan

11: 639-822 (June) 1936

Hormodendrum Pedrosoi: Etiologic Agent in Chromoblastomycosis. C. W. Emmons and A. L. Carrión, San Juan.—p. 639.
Chromoblastomycosis: New Clinical Type Caused by Hormodendrum Compactum. A. L. Carrión, San Juan.—p. 663.
Phialophora Type of Sporulation in Hormodendrum Pedrosoi and Hormodendrum Compactum. C. W. Emmons and A. L. Carrión, San Juan.—p. 703.
Strains of Actinomyces Bovis Isolated from Tonsils. C. W. Emmons, San Juan.—p. 720.
Ophthalmology in the Tropics. W. T. Davis, Washington, D. C.—p. 736.
Practical Value of Intradermal Reaction with Trichinelliasis Antigen for Diagnosis of Trichinelliasis in Man. W. A. Kaljus, Kiev, U. S. S. R.—p. 768.
Preliminary Study of Alkaloid-like Material Obtained from Cundeamor or Momordica Charantia, L. L. Torres Díaz, San Juan.—p. 812.

Science, New York

84: 1-26 (July 3) 1936

New Estrogenic Substance from Ovaries. R. H. Andrew and F. Fenger, Chicago.—p. 18.
Biologic Effects of Homologous Thymus Implants in Successive Generations of Rats. N. H. Einhorn and L. G. Rowntree, Philadelphia.—p. 23.
*Secretion of Antidiuretic Hypophyseal Hormone in Response to the Need for Renal Water Conservation. A. Gilman and L. S. Goodman, New Haven, Conn.—p. 24.
Researches on Pyrimidines: CLIII. Structure of Vitamin B_1. T. B. Johnson and Anne Litzinger, New Haven, Conn.—p. 25.

An Antidiuretic Hypophyseal Hormone.—Gilman and Goodman base their conclusion, that the antidiuretic substance found in the urine has its origin in the posterior pituitary gland and is probably identical in nature to the pharmacologic preparations derived from that gland, on the following evidence: 1. Hypophysectomized rats, dehydrated to the point of death (forty hours), fail to secrete this antidiuretic substance in their urine. Control rats under identical experimental conditions always show appreciable amounts. 2. Both the antidiuretic substance of the urine and solutions of posterior pituitary of the same antidiuretic strength are destroyed to the same degree by thirty-minute hydrolysis with 1 per cent hydrochloric acid, thirty-minute hydrolysis with sodium hydroxide and thirty-minute reduction with one tenth normal sodium bisulfate. 3. The molecular size of both the antidiuretic substance extracted from the pituitary and that excreted by the kidney is such that no appreciable loss in activity results from a three hour dialysis with a cellophane membrane with a wall thickness of 0.00072 inches. The authors interpret these experiments as strong evidence that (1) an antidiuretic substance is secreted by the posterior pituitary; (2) this substance is a true hormone, passes into the circulation and acts on the kidney; (3) the pituitary hormone in its circulation through the kidney filters through the glomerulus and escapes into the urine, in which it is relatively stable and easily detectable; (4) the need for water conservation by the body is a stimulus for the secretion of this hormone.

FOREIGN

An asterisk (*) before a title indicates that the article is abstracted below. Single case reports and trials of new drugs are usually omitted.

Brain, London

59: 135-276 (June) 1936

Motor Cortex in Man in Light of Hughlings Jackson's Doctrines. O. Foerster.—p. 135.
Influence of Experimental Lesions of Spinal Cord on Knee Jerk: II. Chronic Lesions. E. G. T. Liddell.—p. 160.
Origin of Posterior Cerebral Artery. D. J. Williams.—p. 175.
*Meningitis Serosa Circumscripta Spinalis (Spinal Arachnoiditis). J. St. C. Elkington.—p. 181.
Spinal Compression Caused by Ecchondrosis of Intervertebral Fibrocartilage: Review of Recent Literature. W. A. Hawk.—p. 204.
*Progressive Dementia, Without Headache or Changes in Optic Disks, Due to Tumors of Third Ventricle. G. Riddoch.—p. 225.
Afferent Path of Pupillary Light Reflex in Monkey. H. W. Magoun, D. Atlas, W. K. Hare and S. W. Ranson.—p. 234.
Clinical Application of Craniovertebral Dynamics to Encephalography. T. J. C. Von Storch.—p. 250.

Meningitis Serosa Circumscripta Spinalis. — Elkington analyzes the clinical and operative observations of forty-one cases of spinal circumscribed serous meningitis. While the pathogenesis is often obscure it is suggested that trauma, meningeal infections and syphilis are among the causes. The essential change is the development of adhesions and cysts in the spinal subarachnoid space, which produce secondary intramedullary changes by compression and ischemia. The symptoms and signs closely resemble those of spinal compression by tumor, but certain points of value in the differential diagnosis are noticed. The disease is predominantly one of middle age, and a history of definite spinal trauma, of past infection of the subarachnoid space or of syphilis is of value. Though the more common mode of onset is that of an insidious spinal compression, the commencement with spontaneous pain, when it occurs, is highly suggestive. Examination of the cerebrospinal fluid does not serve to distinguish the condition from spinal compression due to other causes. The diagnosis can be suspected but not established before operation. The prognosis must be regarded as grave but is least so in those cases in which operation is performed early before irreversible changes have occurred in the cord itself.

Progressive Dementia Due to Tumors of Third Ventricle.—In his presentation of two cases of tumor of the third ventricle, Riddoch pays little attention to focal symptomatology but stresses the occurrence of progressive dementia in absence of severe headache, of vomiting, and of either papilledema or optic atrophy. Gross hydrocephalus was present in both cases and was, it is believed, the cause of the mental deterioration. Progressive dementia, without headache and papilledema, may occasionally result from invasion of both frontal lobes and the anterior part of the corpus callosum by an infiltrating glioma or a centrally placed meningioma, but the dissociation and its duration are again dependent on the rate of development of the pathologic process. When ventricular blockage is very slow and progressive but variable, the process extending over a period of months or years, as in the present cases, headache, vomiting and papilledema may be absent even at a stage when dementia or stupor, general enfeeblement and incontinence are advanced. The severity of these symptoms indicates the degree of reduction of general cerebral function from slow compression. That great improvement may follow relief from compression by removal of its cause is in favor of the view that impairment of blood supply is the primary factor. In the causation of headache, gross variation in tension in the vessels, especially the arteries and venous sinuses and dural septums, probably plays an important part. Few hypothalamic symptoms were present, which is not surprising, as the floor of the third ventricle was not directly involved by the growth in either case. Polyuria and polydipsia, adiposity or loss of weight were absent. In one case transient glycosuria occurred with the first attack of unconsciousness twelve years before, and in the other case excessive sweating and mild fever were present throughout the observed part of the illness. Abnormal drowsiness, so common with lesions in this region, was a prominent feature in both cases. That the anterior part of the midbrain was affected in each case was shown by the pupillary abnormalities, including reflex iridoplegia. But since the lethargy appears from the first to have been associated with mental dulness, it is safer to assume that it was a general rather than a focal symptom.

British Journal of Dermatology and Syphilis, London

48: 281-336 (June) 1936

Erythema of the Ninth Day (Milian). H. Gordon.—p. 281.
Influence of Bejel on Second Generation. E. H. Hudson and Susan S. Crosley.—p. 288.
Rosacea-like Tuberculid. L. Forman.—p. 299.
Note on Supposed "Calcinosis" of Scrotum. F. P. Weber.—p. 312.

British Journal of Experimental Pathology, London

17: 159-248 (June) 1936

*Artificial Opsonization of Bacteria. J. Gordon and F. C. Thompson.—p. 159.
Evidence Regarding Mechanism of Elimination of 1: 2-Benzpyrene, 1: 2:5: 6-Dibenzanthracene and Anthracene from Blood Stream of Injected Animals. P. R. Peacock.—p. 164.
Behavior of Louse-Borne (Epidemic) and Flea-Borne (Murine) Strains of Typhus Rickettsia in Tissue Cultures. M. Aschner and I. J. Kligler.—p. 173.
Production and Persistence of H and O Agglutinins and Complement Fixing Bodies in Persons Inoculated with Typhoid Endotoxoid Vaccine. E. Grasset and W. Lewin.—p. 179.
Purified Foot and Mouth Disease Virus: I. Studies on Some of Its Physical Properties. I. A. Galloway and W. J. Elford.—p. 187.
Production of Antiserums with Suspensions of Potato Virus X Inactivated by Nitrous Acid. F. C. Bawden, N. W. Pirie and E. T. C. Spooner.—p. 204.
Typhus Group of Diseases in Malaya: Part IV. Isolation of Two Strains of Tropical Typhus from Wild Rats. R. Lewthwaite and S. R. Savoor.—p. 208.
Id.: Part V. Weil-Felix Reaction in Laboratory Animals. R. Lewthwaite and S. R. Savoor.—p. 214.
Observations on Polysaccharide Complex and Variants of Vibrio Cholerae. P. B. White.—p. 229.
Thymus and Adrenals in Response of Organism to Injuries and Intoxications. H. Selye.—p. 234.

Artificial Opsonization of Bacteria.—Gordon and Thompson have followed up and extended the work of Reiner and of Neufeld. In addition to tannic acid and the various salts studied by the previous workers, a large range of other substances has been tested for opsonic action on the staphylococcus. This range includes many vegetable tannins, salts of chromium, iron, aluminum, lead, zinc, copper, magnesium, calcium, barium, cadmium, nickel and cobalt, and also gallic, acetic, lactic and sulfuric acids, trinitrophenol, formaldehyde and catechin. A definite parallelism has been found between tanning action and opsonic activity, and it is considered that the irreversible chemical changes characteristic of tanning are responsible for the changes in physical properties which make phagocytosis possible. Dehydration is an invariable consequence of tanning action, but the authors do not consider it to be the primary factor. The substances that show opsonic activity almost always possess agglutinating power—a property which a tannin would be expected to show on theoretical grounds.

British Journal of Ophthalmology, London

20: 321-384 (June) 1936

Etiology of Chronic Primary Glaucoma. E. O. Kirwan.—p. 321.
Intensity of Light in Relation to Examination of Eye. C. E. Ferree and G. Rand.—p. 331.
*Relationship Between Conjunctivitis and Trachoma. A. F. MacCallan.—p. 346.
Incidence of Myopia in China. O. D. Rasmussen.—p. 350.
Principles of Orthoptic Training. Sheila Mayou.—p. 360.

Relation Between Conjunctivitis and Trachoma.—MacCallan enumerates the various forms of conjunctivitis which on occasion may bear some resemblance to trachoma. He divides them into (1) common conditions (follicular conjunctivitis in children, acute conjunctivitis with follicles and chronic conjunctivitis with corneal vascularization of former interstitial keratitis or former phlyctenular ulceration), (2) uncommon conditions (spring catarrh, toxic follicular conjunctivitis, Parinaud's conjunctivitis, swimming bath conjunctivitis with inclusions, conjunctivitis with inclusions not of swimming bath origin, nongonococcic conjunctivitis with inclusions in infants and follicular type of tuberculous conjunctivitis, or syphilitic conjunctivitis), (3) rare conditions (actinomycosis, sporotri-

chosis, squirrel plague conjunctivitis and bilateral lymphoid infiltration of the conjunctiva) and (4) tropical conditions (trachoma dubium and chronic gonococcic conjunctivitis). In the absence of infiltration of the normally clear cornea by a cellular exudate, and of the vascularization characteristic of trachoma, conjunctivitis may be determined to be nontrachomatous. In many cases of follicular trachoma, stage 1, the appearance of the follicles and their position at each extremity of the retrotarsal fold of the upper lid is characteristic. However, no such characteristic appearance obtains in trachoma when there are no obvious follicles, but merely a widespread subepithelial infiltration which makes the conjunctiva red and velvety.

British Journal of Physical Medicine, London

11: 21-40 (June) 1936

Treatment of Arthritis by Hydrotherapy. W. S. C. Copeman.—p. 22.
Physical Treatment of Injuries. R. Kovacs.—p. 24.
Short Wave Therapy as Superior Form of Deep Heat Therapy. J. Pätzold.—p. 27.

British Journal of Urology, London

8: 105-204 (June) 1936

Massive Cyst Adenoma of Müller's Duct Causing Retention of Urine: Report of Case. R. C. Begg—p. 105.
Horseshoes and Horseshoe Kidney Concave Downward. G. Gordon-Taylor.—p. 112.
Ureterocele: Case Reports of Bilateral Ureterocele in Identical Twins. L. W. Riba.—p. 119.
Pelvic Ureter in Women: Effects of Gynecologic Lesions. E. Catherine Lewis.—p. 132.
Congenital Anorchia. R. H. Flett.—p. 141.
Kidney as Bacterial Filter (Significance of Tuberculous Bacilluria). W. L. Forsyth and K. Samaan.—p. 144.

British Medical Journal, London

1: 1239-1284 (June 20) 1936

Acute Lesions of Upper Abdomen. N. C. Lake.—p. 1239.
*Epidemic Nausea and Vomiting. R. Miller and M. Raven.—p. 1242.
A Box Mask for the Administration of Oxygen. J. A. Campbell.—p. 1245.
Decreasing Mortality and Eliminating Phthisis in Mental Hospitals. A. W. B. Livesay.—p. 1246.
*Ophthalmoscopic Signs of Death. C. R. Salsbury and G. S. Melvin.—p. 1249.
Hyperchromaffinism. D. Chamberlain.—p. 1251.

Epidemic Nausea and Vomiting.—Miller and Raven state that in March 1936 there occurred in an English boarding school an epidemic which presented some novel features and resembled the widespread epidemics recently reported in Denmark under the title of "epidemic nausea." Its symptoms consisted either of vomiting of sudden onset or of nausea, to which was added in a fourth of the cases the sensation of giddiness, sometimes of considerable severity. The illness ran a short afebrile course, all the patients, with one exception, being fully restored to health within forty-eight hours; yet in spite of its apparent mildness the epidemic attacked within a period of fifteen days no less than one half of the pupils and one third of the adults in the school. Altogether among 117 residents there were fifty-two cases, this total including four pupils who became ill at their own homes within a week of leaving the school. Considered primarily a disease of the alimentary system, it becomes difficult to account for the symptom of giddiness, absence of fever, the suddenness of the onset of the vomiting and the absence of diarrhea in the English cases. The English epidemic resembles one originated by some form of food contamination; the heavy incidence of cases in the first two days of the outbreak suggests this, although the same phenomenon may be seen in epidemic poliomyelitis, which all do not yet admit may be due to infected food. In this connection the only type of gastro-intestinal infection which seems to be worth considering is a possible gastric type of Sonne dysentery. Regarded as a possible infection of the central nervous system, such a hypothesis is favored by the suddenness of the onset of vomiting, the occurrence of giddiness and the absence of fever, but it is impossible to hazard any opinion on the type of infection of the nervous system that could be responsible for the epidemics.

Ophthalmoscopic Signs of Death.—According to Salsbury and Melvin, definite changes, easily visible with the ophthalmoscope, appear in the retina in the dead or dying. In life the actual movement of the column of blood is visible in the retinal veins. As death approaches the stream seems to become slightly irregular and "lumpy," although without any actual breach of continuity. Later there is definite fragmentation of the column, and these masses of blood can be seen to move (like marching men) toward the optic disk and then drop over the edge of the optic cup. This is not a transitory effect. Although no actual timing has been attempted, one would estimate that the movement is visible for about ten to twelve minutes on an average. During this time two changes gradually occur. The rate of motion becomes progressively less and the fragmentation progressively more definite. It is as though the marching columns of men, at first in close formation and without organization, gradually formed into companies, with definite intervals between them. These intervals become greater as the rate decreases. After all movement has ceased, the interrupted columns are still plainly visible. So long as the mediums remain transparent there is no difficulty in differentiating this appearance from the former or from the normal appearance during life.

East African Medical Journal, Nairobi

13: 65-96 (June) 1936

Medical History of Uganda. A. R. Cook.—p. 66.
Impressions of Malaria in India. D. B. Wilson and Margarete Wilson.—p. 82.

Indian Medical Gazette, Calcutta

71: 309-372 (June) 1936

Comparative Study of Action of Atabrine and Atabrine-Plasmochin Combination on Indian Strains of Malaria. R. N. Chopra, J. C. Gupta and B. Sen.—p. 309.
*Rôle of Infection in Etiology of Infantile Cirrhosis of Liver. Subodh Chandra Lahiri.—p. 313.
Immunologic Methods in Determination of Infection in Random Sample of Hospital Admissions: Part II. Frequency and Concentration of Agglutinins for Proteus X Strains in Series of Hospital Patients. C. L. Pasricha, K. Bannerjee and S. Lal.—p. 320.
Investigation of Yaws (Koya Disease) in Warangal. C. F. Chenoy, M. Ahsan Siddiqui and A. C. Abraham.—p. 322.
Gastric Analysis in Asthma. L. Everard Napier and Dharmendra.—p. 326.
Pyrexia from Bacillus Columbensis: Two Cases. T. H. Thomas and A. C. Bose.—p. 327.
Treatment of Syphilis by Modenol. F. R. W. K. Allen.—p. 329.
Effect of Ingestion of Vitamin C on Vitamin C Concentration of Milk of Lactating Women. R. K. Chakraborty, A. N. Roy and B. C. Guha.—p. 335.
Note on Use of Cyanogas A Dust as a Raticide and Pulicide. M. Yacob.—p. 336.
Note on Museum Making: III. Method for Preserving and Mounting Pathologic Fluids. P. V. Gharpure.—p. 338.

Infection and Infantile Cirrhosis.—Lahiri investigated the etiology of twenty-five consecutive cases presenting clinical features of infantile cirrhosis of the liver. The health of the mothers in most of the cases was bad. Gross dietetic errors were noticed in only a small number of cases, but a history of irregular feeding was present in all. The total count was generally between 10,000 and 20,000 per cubic millimeter. There were small mononuclear counts, generally from 44 to 60 per cent, polymorphonuclears from 22 to 47 per cent. In one case enlargement of the liver was noticed several days after the onset of fever, a fact also noticed by Ghosh (1887) in some of his cases. In other cases the liver was already enlarged and hard when first examined. The spleen was enlarged in sixteen cases. Enlargement occurred after the fever had continued for some time, and always after the enlargement of the liver. The quantity of the urine was normal or slightly less. There was no difficulty in micturition in any of the cases. The reaction of the urine was acid in all cases. While the presence of bacilli in the urine is not pathognomonic of infection, the signs and symptoms, such as fever, enlargement of the spleen along with the enlargement of the liver, leukocytosis, febrile reactions to autovaccine (prepared from urine and blood culture) and ultimate recovery from the disease by vaccine injections in some cases point to infection being an important etiologic factor. The presence of hemolytic streptococci in the blood of one of the patients also favors the same view. Though in most of the cases the presence of bacilli could be demon-

strated in the urine, symptoms of bladder or renal disease were virtually absent. In the presence of other evidence of infection this may be taken to mean that the real site of infection was not the urinary tract but elsewhere in the body, the bacilli being simply excreted through the kidneys. The conspicuous hepatic features of the cases point to the liver as being the chief site of infection. Slow pyrexia closely resembled that generally seen in many cases of infantile cirrhosis of the liver. It can be concluded that in many cases presenting typical clinical features of infantile cirrhosis of the liver infection plays an important etiologic part. In order that an infection may gain a foothold in an organ with such an extraordinary vitality as the liver has, it is necessary, though not absolutely essential, that it should be previously deranged by long continued dietetic errors or by some other devitalizing factors.

Journal of Tropical Medicine and Hygiene, London

39: 125-136 (June 1) 1936

Unproved Case of Pinta Originating in Ceylon. H. Fox.—p. 125.
Experimental Transmission of Trypanosoma Rhodesiense by Glossina Morsitans from Man to Sheep and Back to Man. J. F. Corson.—p. 125.
Blood Lipid Studies in Leprosy. G. G. Villela, A. Castro and Jeanette Van D. Anderson.—p. 126.

Lancet, London

1: 1279-1336 (June 6) 1936

*Treatment of Human Puerperal Infections, and of Experimental Infections in Mice, with Prontosil. L. Colebrook and M. Kenny.—p. 1279.
*Protection of Mice Against Streptococcic and Other Infections by *p*-Aminobenzenesulfonamide and Related Substances. G. A. H. Buttle, W. H. Gray and Dora Stephenson.—p. 1286.
Macroscopic Agglutination Test in Weil's Disease. A. W. Pot.—p. 1290.
Late Results in Operative Treatment of Intracranial Tumors. H. Cairns.—p. 1291.
Estrin Treatment of Cystic Disease of Breast. E. Dahl-Iversen.—p. 1294.
Evidence of Bullet Wound: Self Defense or Murder? G. R. Osborn.—p. 1295.

Treatment of Puerperal Infections. — Colebrook and Kenny treated thirty-eight cases of puerperal fever infected by hemolytic streptococci with oral and intravenous or intramuscular doses of the hydrochloride of 2:4 diaminoazobenzene-4′ sulfonamide (prontosil). Subject to confirmation by further experience, the impression has been gained that in many of the more severe cases the drug has exerted a definitely beneficial effect, manifested by an unexpectedly prompt fall of temperature and remission of symptoms, and supported by a substantial reduction in mortality. Three patients in whom there was a generalizing peritonitis on admission recovered without laparotomy under large doses of the drug. The clinical results, together with the mouse-protection experiments, support the view that further clinical trial is amply justified and that there is more hope of controlling these streptococcic infections by the early administration of this or some related chemotherapeutic agent than by any other means at present available. While the drug has been well tolerated by most of the patients, there have been transient toxic effects in some and many have shown indications of a mildly irritant effect on the tissues of the urinary tract. Three developed sulfhemoglobinemia. At present there is no indication from animal experiments that the drug is likely to have a beneficial effect on puerperal infections by organisms other than the hemolytic streptococci; and in view of the toxic effects referred to its administration should be confined to such cases. Apart from the fact that the growth of the streptococcus is somewhat retarded (although not suppressed) in the serum of patients under treatment, little is known as to the nature of its antimicrobic influence in the animal body. The invasive character of the streptococcus seems to be unchanged by contact with the drug or the serum of treated animals. There is no evidence of any "immune response" being evoked by it.

Protection Against Experimental Infections. — Buttle and his co-workers found that *p*-aminobenzenesulfonamide will protect mice against streptococcic infection. It has the same therapeutic activity as hydrochloride of 2:4 diaminoazobenzene-4′ sulfonamide but is less toxic when given orally, so that it is possible to obtain better protection by giving larger doses. Protection can be obtained against streptococci belonging to different serologic types. Some protection of mice against meningococcic infection has been demonstrated, but it has not been possible to demonstrate protection against staphylococci or pneumococci. Increase in the number of sulfonamide groups attached to the benzene nucleus to three is accompanied not by increase but by extinction of the streptococcocidal activity. The anilide of sulfanilic acid is as active as the amide. Sulfanilic acid itself has a smaller, but not negligible, protective action. Azo compounds derived from *p*-aminobenzenesulfonamide and phenolic cinchona alkaloids are inferior to hydrochloride of 2:4 diaminoazobenzene-4′ sulfonamide, in this respect.

Bull. et Mém. de la Soc. Méd. des Hôpitaux de Paris

52: 935-982 (June 15) 1936. Partial Index

*Physiopathology of Fatal Accidents Following Pulmonary Embolisms. M. Villaret, L. Justin-Besançon and P. Bardin.—p. 936.
*Investigations on Experimental Prevention of Accidents Following Pulmonary Embolism. M. Villaret, L. Justin-Besançon and P. Bardin.—p. 941.
Practical Lessons Furnished by Provoked Galactosuria Test in Pulmonary Tuberculosis Treated by Aurotherapy. R. Benda and H. Salmona.—p. 945.
Serious State After Suboccipital Puncture in Patient with Cerebral Tumor. M. Pinard and Temerson.—p. 951.

Physiopathology of Pulmonary Embolisms. — Villaret and his collaborators studied the question of how and in what manner a clot situated in a pulmonary artery can induce death. The physiologic problem of clinical accidents following pulmonary embolism can be summed up in the following question: How can the pulmonary aggression caused by the embolus act on the whole organism? There are two theoretical answers to this question: 1. The pulmonary embolus can affect directly the respiratory and circulatory functions of the lung. 2. The embolus once arrived in the lung can cause general accidents of reflex nature. A long study of the physiopathology showed the authors that neither of these explanations is exact but that each, depending on the individual case, contains a certain amount of truth. They carried out experimental studies on dogs and obtained large emboli by means of large pearls of enamel without lead. To obtain a certain and regular pulmonary embolism it was necessary to use the external right jugular vein for the introduction of the pearls. Mucilaginous grains in aqueous suspension also were effective. In order to obtain small emboli they injected powdered stone. The effects of large emboli were studied in more than fifty dogs. The first conclusion of the work was that it was practically impossible to cause death in a few minutes or even in several hours even by means of voluminous emboli in dogs. They were impressed by the slightness of the effect of the emboli on the respiratory rhythm. The production of small emboli was found to effect extraordinarily little change in dogs. The surprising contrast between the size of the embolus and the importance of the dyspneic phenomena that resulted in dogs was the most noteworthy result of the experiments. The authors therefore believe that sudden death can only be the result of a reflex determined by the embolizing particles on the nervous terminals of the pulmonary arterioles.

Prevention of Accidents Following Pulmonary Embolism.—Villaret and his collaborators think that anatomoclinical facts show that there is no constant relationship between the size of the embolic obstruction of a pulmonary artery and the severity of the clinical phenomena that are produced. Physiologic investigations have confirmed the idea that sudden death can be the result only of an inhibiting reflex and that it does not depend ordinarily on the mechanical prevention of the blood flow in the lung. Furthermore, anatomic investigations have demonstrated the essential part of pulmonary vasomotor phenomena caused by embolism: The postembolic pulmonary infarct follows the same mechanism as apoplexy of nonembolic origin. In investigations using rabbits and dogs it was found that, once a dog has received ephedrine, atropine and sodium bicarbonate, rapid death can no longer be produced with a volume of embolism identical with one that would previously have caused death. On the contrary, acidosis obtained by intravenous injection of a solution of hydrochloric acid causes the embolism to become much more rapidly fatal. Alkalosis, on

the other hand, produced by intravenous injection of a solution of sodium bicarbonate, causes the embolism to become fatal much more slowly. Thus both neurovegetative factors and humoral factors become important modifiers of the reaction to embolism in dogs and rabbits.

Presse Médicale, Paris

44: 1001-1024 (June 20) 1936

Problem of Gallbladder Atony. M. Chiray, I. Pavel, A. Lomon and Georges-Rosanoff.—p. 1001.
*Air Cysts of Lung Revealed in Course of Staphylococcic Septicemia. P. Pruvost, P. Isch-Wall, M. Rymer and J. Scemama.—p. 1005.
*New Contribution to Physiopathologic Study of Cerebral Hemorrhage. D. Paulian and I. Bistriceano.—p. 1009.
Diverticulum of Pole of Large Tuberosity of Stomach. P. Hillemand, J. Garcia-Calderon, W. Aubrun and H. Artisson.—p. 1011.
Intestinal Infarct and Hernial Strangulation. R. Fontaine and J. Kunlin.—p. 1015.
Deforming Fibrous Osteitis of Paget. H. Grizaud.—p. 1018.

Air Cysts of Lung in Staphylococcic Septicemia.—Pruvost and his co-workers describe the case of a man, aged 26, whose disease appeared to develop in four successive and distinct phases. The first was characterized by septicemia alone, to which the prognosis was attached. The secondary lung alterations, even though they changed the clinical appearance of the disease, did not change the prognosis. In the course of the second stage there was no longer septicemia, either clinical or bacteriologic, and it was then possible to make an etiologic diagnosis of a pulmonary suppuration of staphylococcic origin. In the course of the third phase of the disease the lung changes produced no fever or effect on the general septicemia: the phase of uncomplicated cyst. The fourth period was characterized by a generalized pneumothorax with a large cavity and was the phase of balloon cyst or ruptured cyst. Thus in one patient successive phenomena characteristic of cysts, namely, infectious phenomena followed by mechanical ones, were observed. The suppuration of the cyst dominated the clinical history in the course of the first stage of the disease and the increase in size of the cyst and its rupture dominated the succeeding phases.

Physiopathologic Study of Cerebral Hemorrhage.—Paulian and Bistriceano believe that it is possible that extravasation of blood causes compression necrosis not only of the peripheral cerebral tissue but also of the veins and arteries. They investigated this possibility in two cases. In one case, histologic examination revealed a double cerebral hemorrhage, an old one affecting the right lenticulostriate region and the more recent one the opposite side in the same area. The hemorrhage followed a rupture of the lenticulostriate arterioles as a result of cerebrovascular sclerosis. In the other case necropsy revealed a voluminous hemorrhagic area the size of a mandarin occupying the superior portion of the left parietal lobe. The hemorrhagic area penetrated deeply into the centrum ovale of the region and compressed the central nuclei of the left side. There was no connection between the ventricular cavities. Microscopic examination of sections at the level of the hemorrhagic area showed hard masses of blood surrounded by a fibrous capsule. In certain regions the masses of erythrocytes were delimited by a large zone of migratory cells of neuroglial or leukocytic origin and an abundant infiltration of old hemorrhagic granulations. In the more peripheral area was a manifest gliofibrillary reaction, and an abundant invasion of blood pigment was noted. The vessels were dilated and filled with red blood cells. The veins also showed in certain regions hyperplastic walls and sometimes torn walls with an abundant leukocytic infiltration. The authors therefore believe that arterial hemorrhage can thus by compression produce changes in the neighborhood of the veins which are similar to the peripheral lesions caused by the original hemorrhage.

Schweizerische medizinische Wochenschrift, Basel

66: 657-676 (July 11) 1936. Partial Index

*Experiments on Significance of Waves in Electrocardiogram. W. Knoll.—p. 657.
*Balneotherapy in Venous Thromboses. T. Schaeppi.—p. 659.
Masked Gout. C. J. Finck.—p. 660.
Treatment of Ganglions. M. Saegesser.—p. 663.

Significance of Waves in Electrocardiogram.—Knoll points out that for a while it seemed that it had been definitely established that the QRS complex, together with the after fluctuation, the T wave, indicated the ventricular systole, whereas the subsequent not deflected line up to the beginning of the P wave supposedly corresponded to the ventricular diastole. However, others advanced a different interpretation. The author was induced to reinvestigate this problem by observations he made on work electrocardiograms of thoroughly trained sportsmen. During work that was accomplished with the legs, the leads were taken from the arms in order to determine in what manner and how rapidly the electrocardiogram would change under the influence of the exertion of work. It was found that at the onset of work, usually after one or two cardiac contractions, characteristic elevations and other changes appeared in the T waves, whereas the QRS complex was hardly at all changed. If the QRS complex corresponded actually to the ventricular systole, it was difficult to comprehend why, particularly in the event of greater exertion, no changes would be manifest in this part of the electrocardiogram, whereas the T waves, the after fluctuations, showed such great changes. In order to gain a better insight into this problem, the author devised a method of experimentation which would permit the simultaneous recording of the mechanical processes on the heart and of the electrocardiographic curve in such a manner that the two could be compared. The author decided on the cinematographic photography of the heart and on electrocardiography by means of Siemens' transportable tension electrocardiograph. His experiments were made on a dog and later on a monkey (hamadryad). The author describes the recording, shows reproductions of some of the records he obtained, and compares his method with similar ones recently described in the literature. He admits that contraction is a mechanical process while electrocardiography is an electrical one, and that for this reason a direct comparison is impossible. However, investigations conducted by de Jong demonstrated that the two processes follow each other rapidly and may even concur. The author points out further that between the state of dilatation of a muscle fiber and its tendency to contract there is a connection, in that the stimulus for contraction is dependent on the state of tension. Consequently he sees in the concurrence of the QRS complex with the diastole that condition which is the basis for the subsequent contraction. To be sure, he admits that this is only a possibility for which there is as yet no definite proof. In his cinematographic records, the ventricular contraction goes from the base to the apex and there are also slight time differences between the two sides of the heart. Moreover, since there is no real period of rest, Schellong's opinion gains in probability; namely, that during life there coexist always irritable and nonirritable muscle fibers, that is, those which are ready to contract and those which are not, contracted and dilated ones.

Baths in Treatment of Venous Thromboses.—Schaeppi calls attention to a type of bath that is helpful in the treatment of varicose veins and of venous thrombosis and which can be given in private homes. Into a full bath (approximately 150 liters) of a temperature of 37 or 38 C., a salt mixture is placed consisting of 500 Gm. of sodium bicarbonate and 100 Gm. of alum. The patient remains in this bath for twenty or thirty minutes a day, but care must be taken that the temperature remains approximately the same (by adding more hot water). The total number depends on the type and severity of the disorder. As a rule, from twenty to twenty-five baths are sufficient. In case of phlebitides and of venous thrombosis, he recommends a preliminary treatment with leeches; but, if the phlebitis is superficial, the baths can be begun five or six days later. For the deep thromboses he recommends an interval of three or four weeks. The latter patients are carefully lifted into and out of the bath in order to prevent embolism. The swelling of the legs and feet commences to disappear as a rule after six or eight baths. The curative period of the severe thromboses, which otherwise may extend over several months, can be considerably reduced by the bicarbonate-alum baths. The same can be said about the superficial phlebitides. In simple varicose veins, the efficacy of the baths is not quite so convincing. The author admits that a protracted warm bath itself produces a hyperemia of the skin; however, control experiments with indifferent baths prove that they do not have the same effect as the bicarbonate-alum baths.

Giornale di Tisiologia, Naples

10: 83-100 (June 30) 1936

*Hypophysis in Experimental Tuberculosis. M. Mosco.—p. 83.
Sclerosing Chronic Tuberculosis of Adrenals with Compensatory Hypertrophy. C. Panà.—p. 86.
Value of Tuberculin Skin Reaction in Adults. A. D'Arienzo.—p. 91.

Hypophysis in Experimental Tuberculosis.—Mosco performed histologic studies of the hypophysis of a lot of forty guinea-pigs with experimental tuberculosis of a chronic and attenuated type. The changes in the hypophysis consisted in the presence of congestion and hemorrhage in the anterior, posterior or both lobes, proliferation of glial and connective cells of the posterior lobe, in which granulomatous tissues existed only in rare cases, nonfollicular granulomatous infiltration of the anterior lobe and degeneration of the nucleus and protoplasm of the cells of the anterior lobe at the sites where there was no granulomatous infiltration. Giant cells, tubercles and tubercle bacilli were not found. The author believes that the histologic changes of the hypophysis in the animals of his experiment resulted from the effects of tuberculosis at a distance rather than locally. The results of the experiment confirm the part played by tuberculosis in the pathogenesis of hypophyseal syndromes.

Policlinico, Rome

43: 1187-1230 (June 29) 1936. Practical Section

*Progressive Muscular Dystrophy: Treatment by Pancreatic Extracts. G. Meldolesi.—p. 1187.
Appendicocele: Case. A. Breccia.—p. 1200.

The Treatment of Progressive Muscular Dystrophy.—Meldolesi reports satisfactory results from the administration of total pancreatic extract in large doses, by mouth, in forty-eight patients suffering from progressive muscular dystrophies of several clinical varieties and of different intensity. The extract is administered until the processes of digestion, especially tryptic digestion, become normal. In all cases further development of the condition is controlled in about six months. The results depend on the possibility of reversibility and compensation of the pancreatic and muscular alterations that are characteristic of the disease. In cases in which treatment is given early in the development of the disease, the establishment of atrophic and retracting phenomena is prevented and the activity of the muscles returns to normal by hypertrophy of the muscles not as yet involved in the pathologic process. In cases of moderate evolution in which pancreatic lesions have taken place and there is more or less muscular retraction, the static and motor functions greatly improve, especially if the necessary orthopedic and surgical corrections are made. In grave cases in which the static and motor capacities are greatly impaired, the treatment fails to give practical results but improves the movement and general condition of the patient. In certain cases the muscular and general improvement of the patients is surprisingly good even in desperate cases.

Arch. Urug. de Med., Cir. y Especialid., Montevideo

8: 465-572 (June) 1936. Partial Index

Preatelectatic Tympanism of Bronchial Obstruction. C. Sayagués-Laso and R.-A. Caimi.—p. 469.
Alopecia and Parathyroid Insufficiency. J.-C. Plá and A. Fabregat.—p. 479.
*Temporary Biologic Sterilization by Human Sperm. C.-J. Escuder.—p. 484.
Leukocytic Formula and Tuberculosis. A. R. Ginés.—p. 503.
Medical Method for Parturition: Kreis Procedure. M. Rodríguez-Zimeno.—p. 512.

Temporary Sterilization of Women by Injections of Semen.—Baskin's technic (*Am. J. Obst. & Gynec.* **24:**892 [Dec.] 1932; abstr. THE JOURNAL, April 22, 1933, p. 1286) is as follows: After intercourse in which a condom is used, the semen is brought to the office as soon as possible. One cubic centimeter of a 1 per cent hexylresorcinol solution is added, the entire amount is drawn into a syringe and an intragluteal injection is performed. No semen is used with a count of less than 80,000,000 spermatozoa per cubic centimeter. Three injections are given at seven day intervals. The amount of semen injected each time varies from 2 to 5 cc. From his experience with a group of twenty-one women, Escuder concludes that success depends on careful technic. Sterility lasts for twelve or fifteen months. The injections are harmless to women. Injections of sperm cause no grave local reactions or endocrine disturbances. The method of sterility is especially indicated in tuberculous women in whom pregnancy is contraindicated.

Medicina Ibera, Madrid

2: 1-32 (July 4) 1936

*Toxic Disturbances Following Intravenous Injections of Calcium. A. Alvarez Fernandez.—p. 1.
Psychopedagogic Study and Treatment of Abnormal and Delinquent Children. F. Fuertes Pérez.—p. 4.

Toxic Disturbances Following Injection of Calcium.—Alvarez Fernandez reports three cases of pulmonary tuberculosis in which the appearance of toxic symptoms (chills, fever, diarrhea, vomiting, vertigo, disturbances of respiration, intense warm appearance of pallor and asthenia), following the intravenous injections of calcium gluconate and lactate, respectively, made it necessary to discontinue the calcium treatment. The solutions used in the injections vary in concentration between 5 and 10 per cent. Patients treated by intravenous injections of calcium chloride or calcium thiosulfate did not develop toxic symptoms even if 10 per cent solutions of calcium chloride or thiosulfate were administered. However, the administration of intravenous injections of calcium chloride or calcium thiosulfate to two patients suffering from tuberculous hemoptysis resulted in the production of hemoptysis following the injection and in disappearance of the former on discontinuation of the latter. The author is skeptical of the results of the calcium treatment in hemoptysis and believes that hemoptoic cases can be included in the group of cases in which the administration of calcium chloride results in the production of toxic disturbances.

Münchener medizinische Wochenschrift, Munich

83: 1039-1078 (June 26) 1936. Partial Index

Intra-Uterine Impairment of Fetus. H. Naujoks.—p. 1039.
*Menstrual Cycle of Three Weeks' Duration. H. Füth.—p. 1044.
*Some Electrocardiographic Aspects of So-Called Nervous Heart. P. Eckey.—p. 1051.
Chronic Relapsing Icterus. R. Meissner.—p. 1053.
Thoughts on Evaluation of Patients with Nervous Disorders. A. Werner.—p. 1054.
*Diet for Children with Fever. Liselotte Meyer.—p. 1057.

Pregnancy and the Twenty-One Day Menstrual Cycle.—Füth says that Wahl's report (abstracted in THE JOURNAL, April 18, 1936, p. 1432) induced him to study the duration of gestation in women who have a menstrual cycle of three weeks. He says that in women with a menstrual cycle of twenty-one days or less the birth of a mature infant can be expected before the 280 day term in 78 per cent of the cases. Only a small percentage of these women give birth after 280 days, and about 16 per cent bear the fetus longer than 280 days. Of the latter infants, about 12 per cent are hypermature at birth, whereas, according to Zangemeister, excessive size is observed in only 7 per cent of the total number of past-term infants; that is, in women with a short menstrual cycle it is approximately twice as frequent as is ordinarily the case. In view of these facts, the author concludes that the practitioner has to be careful in computing the date of delivery for women with a menstrual cycle of three weeks and that for instance permission to travel should not be given toward the end of the gestation, since confinement may take place before the normal term.

Electrocardiographic Aspects of So-Called Nervous Heart.—Eckey describes a number of cases with cardiac symptoms in which the ordinary examination disclosed no pathologic changes in the heart and which for that reason were at first diagnosed as nervous heart. Electrocardiography, however, disclosed organic cardiac defects and the author concludes that electrocardiographic examination should always be made in cases of so-called nervous heart.

Diet for Children with Fever.—The diet recommended by Meyer for children with fever is practically free from protein. It furnishes large quantities of fluid in the form of sweetened tea and fruit juices. Nurslings are given in addition to these fluids one raw egg yolk, and older children are given some stewed fruit and toast and later also two raw egg yolks. Depending

on the duration of the fever, the diet is continued for from two to eight days or even for twelve days. This form of diet is usually well liked by the children and also well tolerated. The diet supplies the great fluid requirements of the organism during fever, it is readily assimilated (carbohydrates, chiefly sugar) and furnishes an adequate amount of calories. Rapid passage through the stomach prevents vomiting and the absence of protein is advantageous, particularly in cases in which the kidney and the liver are impaired. The intake of large amounts of lipoids and vitamins improves the general condition and the defense powers of the organism.

Strahlentherapie, Berlin

56: 181-360 (June 20) 1936. Partial Index

*Treatment of Sciatica. W. Altschul.—p. 181.
*Roentgen Treatment of Coccygodynia. C. I. Baastrup.—p. 184.
Observations on Exclusive Roentgen Treatment in Advanced Carcinomas of Vagina and Uterine Cervix. F. Baclesse.—p. 189.
Extirpation of Tumor and Roentgen Irradiation in Treatment of Cancer of Breast. J. Borak.—p. 200.
*Treatment of Radiodermatitides and of Their Malignant Complications. H. Bordier.—p. 205.
Roentgen Treatment of Thrombophlebitis. F. Eisler.—p. 228.
Ray Treatment of Sarcomas, Particularly of Bone Sarcomas. Grashey, Glauner and Meese.—p. 234.

Treatment of Sciatica.—Altschul says that in the treatment of sciatica he obtained favorable results with a combination of roentgen irradiation of the region of the root and of the course of the nerve and of injections of radium chloride into the region of the root. The roentgen rays are applied in doses of 200 roentgens to each of the fields (one over the root and one or two over the painful regions). After an interval of two weeks, the injection treatment is begun. Six injections (one each day) are made into the region of the root. At the first three injections 1 millicurie is given, at the last three 2 millicuries. Two weeks later, another series of roentgen irradiations are applied. This combination therapy has produced favorable results, but in some cases either of the methods alone produced lasting results.

Roentgen Treatment of Coccygodynia.—According to Baastrup, the term coccygodynia is applied to various disorders that have only the localization of the pain in common. The best defined entity is the traumatic form, which is most frequent after deliveries, particularly in primiparas. Some of the traumatic cases are caused by a fall on the coccyx (skating, falling downstairs or other accidents). Coccygodynia may be elicited also by tumors, tuberculosis, osteomyelitis, rheumatism, uterine disorders, hemorrhoids and fistulas. The symptoms of coccygodynia are difficulty in sitting down and getting up from the sitting position, pain during defecation, particularly when there is constipation, and local pain and sensitivity of the coccyx. In discussing the treatment, the author says that hydrotherapy, diathermy, heat treatments, baths, faradization, antineuralgics and protein therapy have been recommended for the traumatic forms; if these measures fail, the surgical removal of the coccyx is indicated. The operation counteracts the pain but involves considerable dangers (osteomyelitis of the sacrum, fistulas, infections). Moreover, the operation is usually a failure in the nontraumatic forms. The hydrotherapeutic and other expectant measures likewise fail often to produce the desired results. The author decided to try roentgen treatment in an extremely severe case which had proved refractory to several other treatments. He applied 300 roentgens, using a filter of 5 mm. of aluminum. The pain decreased until it had practically disappeared. At the appearance of mild signs of release, two more doses of 150 roentgens each and later a dose of 200 and a dose of 300 roentgens were applied, all of them with good results, the patient being now free from symptoms. The author describes fifteen other cases of coccygodynia (seven traumatic and eight of other origin) in which he resorted to roentgen therapy. He usually applied 300 roentgens but tried different filters and intensities. In some of the patients, other treatments had been tried without success. Ten of the fifteen patients are practically well now. One other patient, who is well now, was operated on for hemorrhoids, so that it is difficult to say whether the operation or the roentgen rays effected the cure. One patient could not be found in the follow-up inquiry, one was only temporarily improved and the roentgen treatment was without effect in two. The author considers roentgen treatment justified in men (provided the testes are covered) and in women who are past the age of the menopause.

Treatment of Radiodermatitides.—Bordier discusses the dermatitides and their malignant complications that occur in workers with roentgen and radium rays or after treatment with these rays. He points out that numerous antiseptic preparations were tried but failed. The results of the remedies that were intended to influence the nutrition likewise failed to come up to expectations. Brocker suggested the use of infrared rays and obtained favorable effects with these rays in two cases of ray dermatitis. The author, however, prefers diathermy, calling attention to the favorable effect exerted by the high frequency currents on the trophic disturbances in the tissues. If the ray dermatitis is in a region in which the tissues consist largely of fat (abdomen) and the circulation of the humors is deficient and vitality of the tissues is impaired, the treatment must aim at increasing the vitality by stimulating the circulation of blood and lymph fluid in the region of the ulceration. Diathermy exerts a hyperemic action not only in the region of the ulceration but also in the tissues underneath. A lead electrode is applied 3 or 4 cm. from the edge of the ulcer. A second electrode is applied on the other side of the ulcer, so that the high frequency current passes through the tissues under the ulcer. The treatments are applied in series of twelve or fifteen sessions. The intervals between the sessions differ from case to case, but the interval between the series does not exceed a month. For the ray dermatitides that develop in tissues that have little fat (face, hand, leg and so on), the author recommends coagulation by diathermy, the aim being to destroy the tissues that have been injured by the rays. Following the coagulation he applies gauze compresses saturated with 1 per cent phenol. The bandages are changed daily. For the ray dermatitides that assume a malignant character, the author likewise recommends coagulation by diathermy. He employed it for twenty-five radiologists who suffered from malignant degeneration of keratotic fields. He cites passages from some of the reports written by the radiologists themselves.

Wiener Archiv für innere Medizin, Vienna

29: 1-160 (July 1) 1936. Partial Index

*Changes in Hypophysis During Beriberi. O. Marburg and K. F. Wenckebach.—p. 1.
Thoracic Electrocardiographic Lead in Diagnosis of Myocardiac Lesions. C. L. C. van Nieuwenhuizen.—p. 25.
*Glutamic Acid as Substitute for Salt: Relations Between Concentration of Urea and Chlorides in Urine of Normal Persons and of Those with Renal Disorders in Course of Tolerance Tests with Sodium Chloride and Urea. F. Mainzer.—p. 53.
Heredity of Endocrine Disturbances. Berta Aschner.—p. 69.
Dynamics of Nitrogen Metabolism in Renal Diseases. R. Berkmann and T. Wolpianskaja.—p. 95.
Plasma Protein Bodies and Sedimentation Speed of Erythrocytes. W. Beiglböck and G. Obersohn.—p. 107.

Changes in Hypophysis During Beriberi.—The observation that the pressor principle of the hypophysis counteracted the vascular symptoms of beriberi induced Marburg and Wenckebach to investigate whether the vascular defects of patients with beriberi might not be caused by a dysfunction of the intermediate and posterior lobes of the hypophysis and particularly by that of their basophil cells. The authors made their studies on the hypophyses of Chinese workers. They found that degeneration and atrophy of the basophil elements, chiefly of the smaller ones, was the most common and the most noteworthy change. They admit that histologic pictures do not permit conclusions regarding the gradual development of a process, nor do these histologic aspects indicate whether the changes of the hypophysis were primary or produced by disorders of other organs. Nevertheless, they think that these changes exerted some influence on the symptoms of beriberi. This is the more probable since the changes in the adrenals and the tuber cinereum, which might be of importance in beriberi, were virtually irrelevant.

Glutamic Acid as Substitute for Salt.—Mainzer directs attention to his first report on glutamic acid as a substitute for sodium chloride (abstracted in THE JOURNAL, June 20, 1936, p. 2205) and, in view of the fact that the glutamic acid is eliminated partly as urea, he now describes his studies on the

relations between the concentration of urea and chlorides in the urine. He made tolerance tests with urea and sodium chloride, alone or together, on normal persons and on those with renal diseases. Moreover, in some of the tests he replaced the urea by glutamic acid. It was found that there is an antagonism between the concentration of the nitrogens and the chlorides in the urine. This antagonism differs only quantitatively in normal persons and in those with renal disease. A mathematical analysis of the problem makes it seem probable that the antagonism in the concentration is due to an osmotic antagonism between urea and chloride. The greater the renal insufficiency, the greater also the practical importance of this antagonism in the concentration.

Wiener medizinische Wochenschrift, Vienna

86: 733-792 (July 4) 1936. Partial Index

Diagnosis of Peritonitis in Nurslings and Children. I. A. Abt.—p. 737.
Is Fever a Constant Symptom During Incubation Period of Measles? Z. von Barabás.—p. 740.
Is It Permissible to Use Sterilized Human Milk in Feeding of Premature Infants? J. Bernheim-Karrer.—p. 742.
Congenital Ear Fistulas and Their Differential Diagnostic Significance During Childhood. B. Dragišić.—p. 748.
*Syphilis-like Roentgenologic Aspects in Nonsyphilitic Skeletal Diseases During Nursling Age. B. Epstein and Martha Klein.—p. 750.
Syndrome of Celiac Disease in Congenital Cystic Pancreatic Fibromatosis and Bronchiectasis. G. Fanconi, E. Uehlinger and C. Knauer. —p. 753.
*Connections Between Zoster and Varicella. K. Kundratitz.—p. 788.

Syphilis-like Roentgenologic Aspects in Skeletal Diseases.—Epstein and Klein describe eight cases of nonsyphilitic bone diseases in which the roentgenologic aspects greatly resembled the various stages of syphilitic skeletal disorders. All except one of these cases were of a septic pyemic nature and showed involvement of the joints. They appeared, like the syphilitic bone diseases, on the epiphyseal ends, even on those that were far removed from the focus of the disease. This permits the assumption that, in the growth zones of the bones and in the adjoining diaphyseal portions, there were in addition to the clinically recognizable foci also changes that resulted from toxic or bacterial influences. In spite of the apparently severe nature of the changes, retrogression set in, and in the majority of cases the pathologic changes disappeared entirely under the authors' observation. In this disappearance too they resembled the syphilitic bone diseases. The patients observed by the authors were children who were in the first year of life; that is, the bone disorders developed at the same time at which the syphilitic changes usually appear. From this it is concluded that the skeleton has a certain predisposition for such disorders at this time of life. The authors stress the importance of these observations for the differential diagnosis of skeletal disorders during early childhood. On the other hand, they show that even the roentgenologic examination of the bones does not always permit an etiologic diagnosis during the first few months of life.

Relation Between Zoster and Varicella.—Kundratitz reviews the epidemiologic and clinical factors that were cited in earlier reports in support of an etiologic relationship between zoster and varicella but says that there are still some investigators who, in spite of this evidence, reject a connection between the two conditions. He then cites cases of his own observation which indicate an epidemiologic relationship between zoster and varicella and reports studies he conducted on the immunizing action of zoster against varicella. Other factors which he considers indicative of a common etiology of zoster and varicella are the identical cytologic aspects of the zoster and varicella blisters as well as the identical morphologic and staining characteristics of the elementary bodies in the vesicular contents of new zoster and varicella efflorescences which also show crossed agglutination. The author admits that the complement fixation reaction gives contradictory results, but he thinks that with a certain technic the results would be more uniform. He points out that it has not been determined as yet why in some cases the symptomatology of zoster and in others that of varicella develops. Some have assumed that the virus may appear as a neurotropic mutation or as a dermatotropic one. Another explanation is that differences in the infected persons might be responsible for the differences in manifestation. In this connection the author points out that varicella occurs frequently in children, or at the age when acute exanthems are most frequent, whereas zoster occurs chiefly in adults, who are more subject to diseases of the nervous system. These varying reactions to the same virus would corroborate Pirquet's theory of different allergic reactions during the various age groups. Other observers have expressed the opinion that the development of zoster could be explained as the result of a cutaneous immunity, which had been acquired by adults either through an attack of varicella or by so-called silent infection. The author concludes that it can no longer be doubted that zoster and varicella are etiologically related, for outside of the virus of varicella no other virus has as yet been demonstrated in cases of zoster, and assumptions of the existence of a different virus are merely unproved hypotheses.

Hospitalstidende, Copenhagen

79: 677-688 (June 30) 1936

*Theophylline with Ethylene Diamine and Its Application in Therapy. T. Geill.—p. 677.

Theophylline with Ethylene Diamine and Its Application in Therapy.—Geill asserts that coronary disturbances (sclerosis or thrombosis) and complications present the main field for the use of theophylline with ethylene diamine and discusses the marked therapeutic value of this agent in cardiac asthma and Cheyne-Stokes respiration. He reports a case of coronary thrombosis with violent precardiac pain, in which large doses of morphine were ineffective but intravenous injections of theophylline with ethylene diamine immediately allayed the pain. In a patient with grave syphilitic disorder of the aorta and heart given massive doses of digitalis the injection of theophylline with ethylene diamine was followed by a typical digitalis bigeminy. The effect of theophylline with ethylene diamine as a diuretic apparently does not surpass that of other purine derivatives.

79: 689-700 (July 7) 1936

*Quantitative Investigations on Resorption of Vitamin A in Case of Celiac Disease: Studies on Hypovitaminosis A. I. C. Friderichsen. —p. 689.
Pathogenesis of Infectious-Toxic Encephalopathy. J. V. Jørgensen. —p. 699.

Resorption of Vitamin A in Celiac Disease.—By determining the weakest light irritation that can cause an oculomotor reflex, Friderichsen obtains the quantitative expression or the degree of hypovitaminosis A in infants. In a case of celiac disease in an infant with fairly grave hypovitaminosis A revealed by this method, vitamin A in sweet milk, mashed carrots and spinach and a concentrated vitamin were not resorbed. After administration of mother's milk the reflex irritability of the eye against light rapidly became normal and the characteristic changes seen in hypovitaminosis (pale and yellowish complexion, dry and scaly skin, pigmentation, brittle hair, keratosis on the plantae) disappeared. Because of the reduced resorption of vitamin A in celiac disease the author suggests that the disease may be a manifestation of a disorder of the reticulo-endothelial system.

Hygiea, Stockholm

98: 417-464 (July 15) 1936

*Contribution to Question of Treatment of Anorectal Strictures in Inguinal Lymphogranuloma. G. Redell.—p. 417.

Treatment of Anorectal Strictures in Inguinal Lymphogranuloma.—In a woman, aged 42, having marked anorectal changes and a history of syphilitic infecton more than twenty years earlier, the Wassermann reaction was negative on the first appearance of the anal symptoms, in 1926. There is a strongly positive intracutaneous Frei reaction, and the anatomopathologic picture, Redell says, is such as often appears in inguinal lymphogranuloma. The process with more and more pronounced stricture of anus and rectum threatened to necessitate an artificial anus, but after intravenous treatment with Frei antigen considerable improvement in passage has resulted, and the patient now manages relatively well without special assistance.